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SURGERY OF THE GALL-BLADDER AND DUCTS.

Opening address of the Chairman of the Section of Anatomy and Surgery of the American Medical Association, at the meeting in Detroit, Mich., June, 1892.

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All those disorders of the biliary apparatus dependent upon obstruction of the hepatic, cystic and common bile ducts, call for surgical relief. Not alone the trouble from gall-stones, but those resulting from aneurism of the hepatic vessels, indurated tumors and adhesive inflammation of the coats of the ducts, come within the scope of progressive surgery. The field of investigation has been greatly enlarged in this department in a comparatively brief period and many derangements of the gall-bladder and ducts, which were formerly intractable, are now within the domain of the aggressive surgeon.

The space allotted to this undertaking does not permit me to enter upon the consideration of many of the points involved in biliary obstruction, and my attention will be directed chiefly to the measures indicated in occlusion of the common duct. In regard to the procedures heretofore adopted, I would refer those who may be interested to my original article in October, 1884, in *Gaillard's Journal*; also to the reports of my experimental work in the *Atlanta Medical and Surgical Journal*, for September, and October, 1884, and September and November, 1885. A complete resumé of this subject was made in my contributions to the second volume of the Reference Handbook in 1886, under the headings of cholecystectomy, cholecystotomy and duodeno-cholecystostomy. My paper on "The Surgical Relations of the Gall-bladder to Obstruction of the Ducts" will be found in the Transactions of the Medical Association of Georgia for 1886. A contribution to the British Medical Association at Brighton, in 1886, "On the Practicability of Establishing an Artificial Fistulous Opening in the Human Subject, between the Gall-bladder and the Duodenum," appeared in the *British Medical Journal*.

Having a few reprints of this paper on hand I will cheerfully furnish them to such members of this Section as may wish to investigate this matter. These publications included the data presented by others up to that time, and have doubtless had their share of influence upon the subsequent treatment of this class of cases.

The increasing interest exhibited by surgeons in the serious consequences resulting from any obstruction to the flow of the bile from the liver has been characterized by greater activity in affording surgical relief for these troubles. Various operative measures touching the gall-bladder and ducts, with crushing and needling of gall-stones, have brought about a revolution not only in the theoretic views of surgeons, but in their surgical appliances. A new era has dawned upon gall-bladder surgery, and old things are passing away, to be consigned to the sea of oblivion.

While the operation of natural cholecystotomy has been done in a large number of cases, by different surgeons, there has been no material improvement in its technique or in its final benefit to the patient. The organic changes, to which cholecystectomy is usually thought to be best adapted, have not been encountered so often as to require this measure in many cases. Yet the good results in a large proportion of the operations reported warrant its adoption under certain conditions, and I have suggested that in excising the gall-bladder its upper wall should be left adherent to the liver.

Incision and suture of the wall of the common bile duct for the removal of gall-stones have been done in twelve cases, with only one fatal result from the operation. Three of the cases have been operated on by Courvoisier, and one by each of the following named: Kummell, Heusner, Kuster, Rehn, Braun, Frank, Hochenegg, Marcy and Vander Veer. A stone has also been successfully excised from the cystic duct by Ross.

The development of the possibilities of benefit from the anastomosis of the gall-bladder and the common bile duct with the duodenum and other divisions of the intestinal canal has latterly occupied the earnest attention of surgeons. When the natural outlet for the bile becomes obstructed it is recognized as proper to effect an artificial passage for it into the intestine. A new departure in operative measures consists in connecting the walls of the common duct with the duodenum, as was done in a case reported September 3, 1891, in the *Deutsch Medicinische Wochenschrift*, No. 36, by Sprengel.

A woman, 30 years old, suffered from the usual concomitants of biliary obstruction, after the abdomen was opened the cystic duct was mistaken for the common duct, and the latter for duodenum. A stone found in the first was pressed into the distended common duct and the passage was supposed to be free. But in another subsequent operation, a stone was found in the cystic duct and a second at the portal channel, which was crushed. The common duct filled immediately with bile, and in order to provide an outlet it became necessary to connect the walls of the duct and the duodenum by incising each and bringing them together with stitches. In doing this some bile necessarily flowed into the wound, but was not followed by any serious disturbance. Three months afterwards the patient had recovered from all trouble and it is to be inferred that the communication from the common duct into the duodenum continued open.

A modification of cholecystotomy by Wölfler has been adopted in a few cases, in which all abnormal

accumulations are removed from the sac and the ducts are freed from any concretions. With a fair prospect of the full restoration of their functions the incision in the wall of the gall-bladder is closed and then attached by sutures to the parietal incision. It is provided in this operation that when the union of the incised wall of the gall-bladder shall be completed a separation of the attachment to the external parietes shall be effected, so as to allow freedom to the gall-bladder. This process is based upon a doubt as to the efficiency of suturing the tissues of the sac; and in case of any yielding of the stitches, to favor the escape of the bile through the parietal wound instead of its discharge into the peritoneum. While the presence of freshly produced bile is not proved to be productive of serious results, this procedure implies an abundance of caution against the contingency of failure in suturing the sac. In the ordinary process of attaching the incised wall of the gall-bladder to an opening in the abdomen, styled natural cholecystotomy, with a view to give an outlet for the bile, there is no provision for utilizing this discharge from the liver. When the ducts are patulous, leading into the gall-bladder and into the duodenum, the process of ideal cholecystotomy, by emptying the contents of the gall-bladder closing the incision of the walls, and with dropping this viscus into the abdomen, has been attempted with satisfactory results, and a successful case has been reported recently by Hardon. It would hence appear that all cases of the obstruction of the cystic and common ducts by gall-stones call for their dislodgement by one or another procedure, to afford an outlet for the bile; and that the attachment of the incision in the gall-bladder to the opening in the wall of the abdomen, leading to a discharge of the bile externally, should be regarded as a mere temporary recourse. In the event of failure to effect an outlet for the bile through the common duct, then cholecystenterostomy is clearly indicated. As to the portion of the intestine which should be selected, for the attachment of the gall-bladder or the ductus choledochus, we have a definite guide in the entrance of the bile naturally into the duodenum; and the nearer to this an anastomosis can be effected the better effect may be expected. The relations of the duodenum and jejunum to the gall-bladder ordinarily are such as to facilitate their union, and I have given the preference to the duodenum from physiological considerations as well as from surgical convenience, while objecting to the colon.

It is, of course, presumed that there is such an occlusion of the common bile duct as to prove irremediable by other means before proceeding with an operation to effect an outlet for the bile by uniting the gall-bladder with the intestinal canal. A misunderstanding of this condition has led to misapprehension of the end to be attained by duodeno-cholecystotomy or cholecystenterostomy, and once for all let me say it is only warranted by occlusion of the common duct. It may be allowed me, without a charge of indelicacy, to quote in this connection the pointed remarks of Greig Smith, upon entero-cholecystotomy in the last edition of his work on abdominal surgery as follows:

"By this operation is meant the establishment of a fistula between the gall-bladder and the intestine. The operation is indicated only in cases of incurable biliary fistula—that is, in cases where there is irreparable occlusion in the ductus communis choledochus. The original operation of Winiwarter successfully established a communication between the gall-bladder and the colon. In this situation the physical effects of the biliary secretion were lost. Dr. Gaston, of Alanta, Georgia, in a series of instructive experiments on dogs, showed how a communication might be established between the duodenum and the gall-bladder, thus preserving in the system whatever value the bile may have. Gaston speaks of his operation as duodeno-cholecystostomy. Some misconceptions and misdirected criticism's of Gaston's operation have appeared in various journals; to these he has given satisfactory answers." Greig Smith states further that, "this operation, when it is easily carried out, is theoretically the best. But fistula with the upper portion of the jejunum would be scarcely inferior to fistula with the duodenum, and with any part of jejunum or even ilium, superior to fistula with the colon."

Having such a recognition of my work in this book, and being endorsed fully by McGraw in his address upon taking the chair of this Section at the last meeting of the Association, I feel warranted in referring to the appreciation of my labors in this line by the others at home and abroad, whose commendation does me honor.

In the review of my reviewers, which appeared in the *Medical and Surgical Reportor* of September 12, 1885, it was stated that I could bide my time for a just estimate of my experimental work, and the way is now open for an impartial consideration of this subject. In the comprehensive and elaborate record by Courvoisier of what has been accomplished during the last decade for the relief of biliary obstruction, my work has not been overlooked. He states that the experiments on animals were undertaken in the hope thereby of clearing up the way for a practicable future operation on man. Gaston sought to utilize the elastic ligature. In five dogs he carried it through the approximated walls of the gall-bladder and duodenum, in such a way that one-halt of the tightly drawn loop lay in the former the other half in the latter. The loop was to cut through both walls at the same time, and thus form a fistula between both cavities. At the close of his operations Gaston placed a catgut suture around the place where the walls of the organs lay in apposition. In one animal the adhesions were completed by the eleventh day and in this case there was a beautiful fistula, while the ligature had passed on through the intestine. In 1884, Gaston also made an experiment on a young dog, with a silk ligature, and obtained a good result. Later on he repeated these experiments with ligation of the common duct without satisfactory results. Courvoisier further states that Golzi reports five experiments on dogs. The common bile duct was ligated. Then, with a catgut suture, the surfaces of the gall-bladder and the nearest loop of the small intestine were stitched around a loop of suture, passed through each wall so as to cut through. It is stated that the animals bore the operations without material derangement of the digestion. It is also noted that Page operated in the same manner as Golzi did, on three dogs, omitting, however, the ligature of the common duct. One dog survived, one sank with peritonitis, and the third died after six weeks, showing a considerable shrinkage of the gall-bladder but without any fistula. The result is not known in the dog which survived. Courvoisier also

alludes to the process suggested by Harley for effecting a communication from the gall-bladder into the intestinal canal. He proposes to effect a perforation of their walls by the use of caustic potash, which would at the same time excite inflammation of the adjacent surfaces, and then stitch them together. This is expected to secure a union of the surfaces with a fistula in the center.

While each of the several operations may be indicated in special cases, the present outlook of anastomotic procedures for conveying the bile from the liver into the intestinal canal in obstruction of the common duct is entitled to precedence in gall-bladder surgery.

All our resources being exhausted without relief to the impediment for the discharge of the bile through the ductus choledochus, and finding the integrity of the gall-bladder favorable for its attachment to some portion of the intestine, we may rest assured of being able to effect an opening from the former into the latter by which the bile shall subserve its legitimate purpose in the animal economy.

The various procedures adopted by Golzi, Page and myself in our experiments upon dogs were undertaken with a view to guide others in the performance of operations upon human beings. This work must hold a place similar to that of pioneers who have gone forth to blaze out the paths in an unexplored region and have set up danger signals to caution the unwary traveler who may come after them in the search for a route which shall lead to the goal of their expectations. Some quagmires and quicksands were encountered by us which may be avoided by others. All must allow that the fruit of our experience has thrown much light upon the intestinal labyrinth in which we groped without a guide to direct us at that period.

My efforts were directed at the outset mainly to the establishment of a fistulous connection between the gall-bladder and duodenum by means of an elastic ligature passed through their approximated walls. This was surrounded with a circular or an oval continuous suture of catgut, so as to effect the immediate adhesion of the serous surfaces. But it was subsequently found that a single stitch of silk thread united the surfaces and ultimately cut its way through the two approximated walls so as to effect a communication from the gall-bladder into the duodenum.

The difficulties encountered in ligating the common bile duct subsequently were the greatest obstacles to the final success of this operation, and would not be encountered in case of preëxisting occlusion, which is the occasion of performing an operation on the human subject.

These and other experiments, undertaken upon twenty-one dogs, are illustrated in the cuts accompanying my paper laid before the British Medical Association.

It may be stated here that my conception of the procedures indicated were not limited to the means employed in these experiments, and it was distinctly set forth that some other process may be found preferable, and it rests with surgeons to adopt that which proves best.

A number of operations have been referred to by Courvoisior, Marcy, Vander Veer and Ross as undertaken by different surgeons, with a view to secure the results aimed at; and I cannot perform a more profitable service to the profession than to present some of the details gathered from various sources.

To Nussbaum is attributed the first suggestion of relieving the occlusion of the common bile duct by discharging the bile into the intestinal canal through artificial openings in the adherent walls of the gall-bladder and the intestine.

But the credit of having first accomplished this result upon the human being is undoubtedly due to Von Winiwarter; and it affords me the greatest satisfaction to award him the honor of priority in the execution of cholecystenterostomy.

We are informed that between the 20th of July, 1880, and the 14th of November, 1881, he treated for sixteen months a man aged 34, who suffered from obstruction of the common gall duct, and who was subjected to six different operations for the formation of a fistula between the gall-bladder and colon. All kinds of difficulties thwarted this undertaking, but it is claimed that he eventually succeeded in attaching the gall-bladder to a coil of the small intestine and effecting a fistulous communication, by which the bile escaped into the intestinal canal, thus obviating the inconvenience of an external outlet.

After a lapse of six years, during which the various experiments on dogs by Golzi, Page and myself were performed, Monastyrski united the gall-bladder with the jejunum on the 4th of June, 1887.

He incised the abdominal wall, punctured the gall-bladder, incised its walls and the jejunum, and sewed the edges with catgut. A fistulous communication was secured two meters below the duodenum, but death ensued ultimately from carcinoma of the head of the pancreas, as verified by the autopsy.

The operation of Kappeler came next in the order of time, being done on the 6th of July, 1887, by uniting the gall-bladder with the ileum by Wolfler's suture. The patient progressed favorably for a time and returned to work, but eventually died on September 9, 1888, fifteen months after the operation. The autopsy showed that a biliary fistula was established about eight feet from the ileo-cæcal valve, and that its intestinal orifice was provided with a valve which allowed the contents of the gall-bladder to pass into the intestine, but prevented the passage of the intestinal contents into the gall-bladder. Doubtless a similar provision exists in all such cases.

In the year following the operation of Kappeler Fritzche accomplished a fistulous opening from the gall-bladder into the jejunum, three meters below the pylorus. At the post-mortem examination a carcinoma of the size of a walnut was found at the mouth of the common bile duct. Socin and Bardenheuer each attached the gall-bladder to a loop of the small intestine. The case of the latter died in the fourth week and no fistula was found. It is said to have been done with elastic ligature.

Robson operated on March 2, 1889, upon a patient who had undergone a previous cholecystotomy when the ducts were freed and the gall-bladder was sutured to the abdominal wall with firm adhesion.

The common duct being subsequently occluded an incision was made through the scar from the former operation in the semilunar line, and it was found that the attachment of the gall-bladder could only be effected with the colon. Both were incised and united with chromicised catgut in two rows. The former external fistula was sewed up and a drainage tube inserted in the wound. After one day bile came out

of the drainage tube and also fæcal matter from the intestinal wound. In spite of this a speedy recovery with bilious matter in the fæces is reported.

On July 13, 1889, Terrier performed an operation for the relief of occlusion of the common duct. An incision was made in the median line above the navel: the gall-bladder was punctured and the bile discharged. Upon incising its walls and exploring its cavity no stones were found and the cystic duct was open. There was a gall-stone impacted in the oblong enlargement of the common duct, which could not be removed. After attaching the gall-bladder to the duodenum by a circular or oblong row of cat-gut sutures, and before tying the last stitches, the walls of both were incised and a drainage rubber tube was introduced, so as to pass from the cavity of the gall-bladder into the duodenum. The fundus of the gall-bladder was sutured to the lower angle of the external incision which was then closed up by a catgut suture. There was fever until August 1, but the itching and jaundice gradually disappeared. The drainage tube passed with the evacuations nine days after the operation, and the stools gave evidence of the presence of bile. The external wound healed by first intention. The patient was dismissed on August 10, in ordinary health. This patient died in the spring of 1890 from influenza and no gall-stone was found in the common, bile duct.

Courvoirsier, in like manner with Robson, performed the operation of natural cholecystotomy upon a patient without getting a satisfactory result. After the lapse of a year complications arose which demanded cholecystenterostomy and this was done on the 28th of March, 1890. An incision was made through the abdominal wall below the ribs along the border of the liver. The gall-bladder was detached from the abdominal wall, and after incising the sac, a gall-stone was removed from the common duct and others scooped from the hepatic ducts. An incision into the lower surface of the gall-bladder was united to the colon by an oval row of catgut sutures, and before putting in the last stitches the wall of colon was incised. The fistulous parts of the gall-bladder were cut away and the edges stitched up. Two drainage tubes were inserted and the external wound closed around them. There was no fever after April 2. Bile was found on the dressings but its source was not determined. There was bile in the stools on the 6th day of April, and on the 8th the drainage tubes were removed and the external wound was stitched up. On the 15th of April the patient was free from jaundice and got up feeling very well. The case was dismissed about the middle of May, and in the middle of July her condition was excellent. There was no more colic or jaundice.

Courvoisier thus sums up the result of these seven cases: "One person operated upon died as a consequence of a complication which should not be charged to the method. All others recovered from the operations but in four of the cases the cancerous condition of pancreas brought on death at a later period. A definite final cure only is claimed in the cases of Robson and Courvoisier, which it will be remembered had the gall-bladder attached to the colon not by choice but from necessity."

The practicability of effecting an outlet from the gall-bladder into the intestinal canal can no longer be doubted, and in the view of Courvoisier it stands more and more securely as the details from trustworthy sources become more widely disseminated.

The indications for the operation are formulated by him as follows:

a. When gall-fistulæ are difficult to remove, whether traumatic, ulcerative or operative.

b. In permanent obstruction of the common bile duct (except in cases of gall-stones).

c. In traumatic and ulcerative perforations between the common duct and the abdominal wall.

It is contra-indicated in the following cases:

1. When the patients have grown feeble, in which cases, the provisional cholecystostomy might be used.

2. When the common duct is obstructed by gall-stones, in which case, lithectomy with stitching, or lithotripsy are indicated.

A notice of a case of cholecystenterostomy has been reported by Helferich (in the *Deutsch Medicinische Wochenschrift*), February 25, 1892, for the details of which I am indebted to Dr. P. J. Rozenheim, of New York.

The patient, a man aged 29, had suffered periodically from pains in the stomach since 1885 and developed jaundice in April, 1891. During the following month he had attacks of biliary colic, recurring every fortnight, the jaundice being marked after every attack. It was thought that the common duct was obstructed by calculi and an operation for their removal was undertaken in November. An incision was made midway between the lower border of the ribs and the border of the enlarged liver, extending vertically in the linea alba to the ensiform cartilage. After the liver had been retracted, the gall-bladder came into view; it contained no calculi, but an examination disclosed a number of calculi in the common bile duct, which it was found impracticable to remove. An opening was, therefore, made in the gall-bladder and another in the first part of the jejunum, and a communication was established between these structures by suturing the corresponding margins of the apertures. The fistula thus formed was of the calibre of a lead pencil. The patient made a rapid recovery, the symptoms of jaundice having disappeared. During the following January he experienced two slight attacks of fever, without any jaundice, which the author attributed to calculi in the common bile duct. As a means of affording palliation of his sufferings the operation was a success.

Chavasse has reported, in *The Lancet*, an interesting case in which an anastomosis between the gall-bladder and colon was affected by a process differing materially from the previous operations. A man 48 years old had undergone cholecystotomy for the relief of jaundice dependent upon biliary obstruction by calculi, which was followed by the persistence of a biliary fistula. Other means failing, with the aid of Senn's bone-plates a communication was established between the gall-bladder and the colon at its hepatic flexure. At first bile and fæcal matter were discharged through the abdominal wound, but ultimately this closed, the stools were passed naturally and the general condition of the patient was much improved.

Korte also reports a successful case of the union of the gall bladder with the duodenum, after the manner of Terrier, thus affording two favorable results of duodeno-cholecystostomy.

So far as the operations are to be considered, those of Kappeler and Terrier were successes, and being added

to the other six final good results, give eight cures out of twelve cases in which the operation of cholecystenterostomy has been performed.

This encourages the expectation, with more improved methods, of obtaining a satisfactory solution of the problem of relief for occlusion of the common bile duct. While other means may be employed for correcting temporary obstructions of the ducts, the great desideratum in occlusion of the common duct is to effect an artificial opening from the gall-bladder or duct into the duodenum or the adjacent portion of the intestinal canal.

The practice of tamponage with gauze around the locality of biliary exudations, whether connected with operations or from injuries involving rupture of the ducts or the gall-bladder, has proven successful in preventing the diffusion of bile throughout the cavity. Upon this principle it is found that the introduction of gauze in the vicinity of a sutured duct or an anastomosis with the intestine, acts well and may be removed when the drainage is no longer needed.

TEXAS AS A CLIMATE FOR CONSUMPTION.

BY F. D. MARSHALL, M.D.,
OF CHICAGO.

Mr. President and Members of the American Health Resort Association:—My attention was first directed to the climate of Texas as a fit place for consumptives in the spring of 1868.

Dr. J. Scoonover a classmate of mine had just graduated from the College of Physicians and Surgeons, of New York: and was now physically a wreck.

The doctor had been a hard student for several years and had a family history that was unmistakable, having lost two brothers of consumption.

Dr. Metcalf of New York, after a careful examination of the case advised him to go to Texas or Florida, he chose the former place having some knowledge of the country.

Dr. Scoonover's case was an unmistakable one of tubercular deposit in the right lung as shown by physical examination and confirmed by great emaciation and spitting of blood.

His case seemed hopeless, but with small means at his command and a deal of pluck, he headed for the southwest, locating at Greenville, Hunt Co., where he began his professional work, with a pony and saddle as a means of getting about.

Greenville at that time was a small place, the centre of a vast stretch of rolling prairie devoted mostly to cattle growing with an occasional spot under cultivation; leaving Chicago in March, the change was a grateful one and improvement began at once, his appetite increased and his cough lessened very perceptibly from the start.

For several years I was in the habit of going once a year from Chicago and making him a visit and in that way was in position to keep close watch of his condition. I will say here, that the only medicine he took was an abundance of pure Norwegian cod liver oil. As a help to the assimilation of the oil he had an abundance of sunshine and pure air which in these cases are indispensable. Dr. Scoonover has for the past fifteen years been a well man without the slightest indication of a return of his lung disease.

Greenville has an elevation of about 800 feet above sea-level.

In 1885, having been a great sufferer from neuralgia of my stomach and face, I moved to Texas and located at Denison, Grayson Co., only four miles inside north boundary of the State. Here I engaged in stock growing, and like magic, my stomach and face pains ceased; could eat without fear, and too, foods that I had shunned in this climate. I speak of my own case wishing to emphysize this one fact to-wit: that in that pure air and bountiful sunshine digestion and assimilation of food is markedly stimulated and here is one great secret of improvement for the consumptive. Denison has an elevation of 1000 feet; the days in summer are at times hot, yet, the gulf breeze makes even the summer months much more enjoyable than in many northern locations.

A notable feature of the climate of Texas is its well drained country which is simply perfect, especially in the localities best fitted for the invalid, so that malarial diseases are unknown to some of the oldest inhabitants.

The general course of the streams is southeast and as you travel towards their source you have reached an elevation of from three to five thousand feet above the sea; and between the gulf and the extreme northern and western portions of the State can be found a climate that will suit almost any case of consumption that is curable.

Had I time I would go into a detailed description of the locations of this vast country where homes can be had for those suffering with lung diseases, but at present will only mention a few, some of which may be well known to you. San Antonio has for years and still enjoys a great reputation for the consumptive, with an elevation of 1,500 feet, and 150 miles from the gulf with her abundant water supply and beautiful scenery will furnish advantages, especially in winter, perhaps unequaled by any place in this country. A sanitarium is much needed in this location, and small cottages to accommodate families who wish to live there while some member of the family is ill.

Thirty miles northwest may be found at about the same elevation, Bourne, a beautiful place for health seekers where the surroundings are beautiful and good accommodations can be had. This locality is by many, regarded as much better than San Antonio, Pure spring water is in great abundance in this part of the State, as evidenced by three rivers which rise within eighteen miles from north to south, whose waters gush forth in great volumes from the low mountain ranges.

Kerrville, about forty miles from Bourne, is a new place on the Gaudalupe river, bids fair to be a great resort. The mountains though not high are generally covered with red cedar and live oak.

El Paso has an elevation of 3,750 feet, and in many respects is better than other places, it being better protected from the north winds that come down from Colorado called "northers." Abilene has about the same elevation as El Paso, and will in time become a great place for consumptives.

San Angelo and the country east has only an elevation of 2,000 feet, but is free from malaria and is cool in summer. There are many other places I have not time to mention.

The winters of Texas, though sometimes cold, going below freezing in extreme northern portions, are short and delightful, and during the summer, though the sun is hot, the air is so invigorating

that sunstrokes are very rare. In the valleys of the Brasos Pacas, Colorado and Rio Grande rivers, fruit in great abundance is grown, and of a superior quality, grapes especially. The rainfall in Texas has notably increased where the land has been cultivated and hence the best locations are those least fit for agriculture; such are the places I have mentioned. The rainfall at El Paso is thirteen inches per annum, the least of any places I have mentioned.

I have known a washing of clothes to become dry enough to wear put out at 9 P.M. and taken in at 4 A.M. I believe the southwest is to become the home of the consumptive, and let us, as physicians, help on in the great work until there shall be established in Texas, New Mexico, Arizona, some portions of California, Colorado and Kansas, capacity for caring for suffering humanity afflicted with consumption. And when our patients have found a home and recover, advise them to remain there where they can be well.

REPORT OF CASES OF TREPHINING AND CEREBRAL INJURY.

From the records of the Cambridge Society for Medical Improvement.

BY ALBERT H. TUTTLE, M.D.

Case 1.—Reported by C. E. Vaughan, M.D. Wm. R. S. B., age 24 years. December 13 was thrown from his horse, striking his head. For twenty minutes appeared unhurt, then a slight convulsion occurred followed by four more in the course of an hour. When he reached the hospital the pupils were somewhat contracted, but equal and responsive to light; the skin was cool and dry, and the face pale; pulse 42, temp. 99°, and the respiration 16. There was no complaint of pain, but a strong desire to urinate and to defecate, and a large amount of apparently normal urine was passed voluntarily. There was no evidence of paralysis, or external signs of fracture or depression of the bone, or injury. Biliary vomiting occurred, and soon intense diffuse headache, with pain in the dorsal region. Bowels reacted with great difficulty. The patient was conscious, yet the mind was dull and confused, but answered questions when aroused.

On the 14th, the condition was about the same; somnolence; slow, but perfect cerebration; increased headache partially relieved by morphia. The scalp was shaved but no fracture discovered, and only a slight, superficial, scabbed scratch was found on the occiput, to the right of the median line.

On the 15th, mind more sluggish, imperfect cerebration, irritable when disturbed, temp. 101°, pulse 52-55, resp., 14; pupils somewhat larger when at rest, and the left does not respond as quickly as the right, and expands again while still exposed to light; slight ecchymosis of the right eyelid, and a limited œdema of the scalp on the occiput, to the right of the median line, near the junction of the lambdoidal and sagittal sutures.

On the 16th, increased somnolence, and sluggish cerebration; the difference in the pupils is more marked, due to contraction of left, which responds very slowly to light; the œdema has extended to the ear, the skin has become ecchymosed, and of a purple hue; there is ptosis of the left eye lid, with ecchymosis of right, and the left angle of the mouth droops a little.

Owing to the decided and progressive signs of cerebral compression it was determined to make an exploratory incision. Operation under ether. A horizontal incision was made through the scalp about two inches above, and one inch behind the right ear; from the ends of this incision two more were made in a downward direction. By this means, a transverse fracture was discovered forming a clean crack without splintering or depression, the extent of which was not discovered, although three inches could be determined. By compressing the skull between both hands a distinct motion of the sides of the fracture could be produced. During the whole operation, clear blood welled up freely.

Two buttons of bone were removed with the circles slightly overlapping, some small clots extracted, and the wound dressed aseptically, with gauze drainage.

During the operation, the pulse rose from 40 beats to 120, and soon after fell to between 60 and 70. For twenty-four hours, there was no perceptible change in condition of the mind, pupils, eyelid or mouth, but mental activity slowly returned, and on the fourth day after the operation the patient became very excitable, irrational, and persisted in pulling off the bandages and getting out of bed. By the sixth day the pupils became equal, and reacted normally; there was less droop of the eyelids and mouth, and for the first time the patient realizes where he is, but has no recollection of the accident, or subsequent events. On the thirteenth day he was less excited, but certain delusions have become fixed ideas, viz.: first, that it is very important he should go home, even at the risk of his life, on account of some imaginary business; second, two cases of mistaken identity, confounding the house physician with his brother-in-law, and the night nurse, with another old friend. These ideas are not affected by arguments. There is a good deal of rambling, garrulous talk. The temperature is normal, but the pulse has risen. On the eighteenth day he became so much excited and persistent in his fixed determination to go home that it was necessary to confine him in a separate room with a special attendant. From this time he steadily improved, to entire convalescence.

Case 2.—Reported by C. E. Vaughan, M.D. Andrew M., age 56, fell from top of a wheel, striking the right shoulder and back of the head upon the ground. Upon being raised he stood up and spoke, retained consciousness about half an hour, rode home in a carriage, walked with some help into the house, but did not recognize his wife. Consciousness was soon lost and nover entirely regained. He became restless, and when disturbed irritable, answering "I'm all right." Skin cool and dry; extremities cold; temperature 97.5°, pulse 42, and somewhat irregular, retention of the urine, pupils small but equal and responsive to light, respiration slow and irregular, no paralysis. He soon became comatose and could not again be aroused. There was a superficial scalp wound on the occiput to the right of the median line, but no evidence of a fracture or depression could be found by the finger or probe. At 11 P.M. there was irregular pulse, from 52 to 70 beats, Cheyne-Stokes respiration, subnormal temperature, and paralysis of right buccinator.

On the second day there was an increase in the size of the pupils, incontinence of urine, action of the bowels by means of salines and enemata, and ecchymosis and œdema about the scalp wound.

On the third day, there was irregular reaction of pupils to light,—the left less sensitive,—somewhat stertorous respiration, strong pulsations of the right facial artery, and to less extent of the carotid. On the fourth day there were sharp right-sided with milder left-sided convulsions, pin-hole-size pupils, irritated by exposure to light, right hemiplegia, and death on the evening of the fifth day.

The autopsy showed a small scalp wound on the right and back, two linea fractures without separation, depression on splintering of the edges, diverging from the site of the scalp wound but not meeting, one extending downward and forward across the lateral sinus to the base of the petrous bone and the other downward and backward across the occipital to its left border; a small extravasation of blood outside the dura on the left side, and beneath the dura several ounces of dark soft clotted blood which caused compression of the brain. The brain, on section, was moist, the small vessels were distended with blood, there were several small isolated clots of extravasated blood in the hemispheres, and the ventricles contained a little reddish fluid.

A comparison of these two cases shows the seat of the blow was almost precisely the same, that in neither were there any external signs of fracture, that in the first there was a clear history of compression of one side of the brain, produced by a local extravasation of blood, and the relief of the pressure by trephining was sufficient to entirely remove the symptoms; whereas in the second case, the symptoms indicated, besides progressive compression of both sides of the brain, which could not be localized, a severe general injury to the brain proper, produced directly by the concussion, and without any indications which would warrant operative interference. This was distinctly shown at the autopsy.

Cases 3 and 4.—Reported by Dr. E. H. Stevens. B. C., age 18, was thrown from a wagon against a curb stone, June 17, 1892, striking the skull and producing a transverse wound two and one-half inches long, situated one and one-half inches above the superciliary ridge on the left side of the forehead. Through the wound, which was filled with dirt, a depression could be felt, and upon dissecting back the pericranium, a transverse fracture was found nearly the length of the skin wound with a marked depression of its upper edge. The patient was semiconscious, with slow, regular, but feeble pulse, and contracted pupils; he vomited blood. A button of bone was removed with an inch trephine, the centre of which, was over the sound bone, and with considerable difficulty the depression was elevated, and the dura was found uninjured. There was very slight bleeding and the wound was brought together, excepting immediately over the site of trephining, where it was packed lightly with iodoform gauze, and dressed aseptically. The pupils dilated, the breathing became natural, the pulse rate increased to about 100, and the patient became conscious in about three hours.

June 18th, patient vomited all day; the pulse was slow and regular, and the pupils dilated.

On the 19th, vomiting ceased; pulse the same, pupils dilated and responding to light. The wound was dressed on the 20th, and looked well, the pulse was stronger, and the mind clear; there was some headache. From this time on convalescence was uninterrupted, and the patient was discharged July 16.

Case 4.—T. H., age 34, Oct. 27, 1892, was struck in the frontal region by an iron pulley of several pounds weight, which fell about ten feet, and walked into the hospital in a conscious condition. There was a clean cut wound two and one-half inches long which extended transversely across the forehead, two inches above the left eyebrow, and a depressed fracture of the frontal bone two inches long and one quarter of an inch in width, which was depressed to the depth of the thickness of the frontal bone at this point. A button of bone was removed with the trephine, and the depressed pieces of bone extracted. Several small pieces of the inner table were splintered off and lay loose upon the dura, the larger one being turned on its sharp edge and pressing firmly against the dura which was slightly torn and bleeding. The bleeding was checked, the opening of the skull covered with iodoform gauze, which was brought out at the lower angle of the wound in the skin, the wound closed with buried tendon suture, and a firm dressing applied. After the operation he became very restless and had severe headache. On the 30th, there was less headache, temperature 99°, and the wound which was looking well, after removing the iodoform gauze, was dressed. The wound entirely healed by November 8, and the patient was discharged on Dec. 5.

Case 5.—Dr. J. M. Crocker reported a case of a seafaring man who was struck on the head, and died from the effects of the blow in a few hours. The autopsy showed free hæmorrhage, and a large clot which caused death by pressure upon the brain, and that the case might have been saved by early trephining.

Case 6,—Reported by Dr. G. W. Jones. A butcher of middle age fell from his team, and was found by the wayside in a comatose condition, with a scalp wound on the right side, and a fracture of the temporal bone. The scalp was dissected back, and the skull trephined, when it was discovered that although the outer table appeared as a simple undepressed linear fracture, the inner table was quite comminuted, the splinters having lacerated the dura and produced considerable hæmorrhage and pressure on the brain. The case made a good recovery.

Case 7.—Reported by Dr. S. W. Driver. A boy 14 years old was thrown from a horse, striking his head, and producing a compressed comminuted fracture situated about two inches above, and an inch and a half behind the ear. When first seen he was semiconscious and delirious. After shaving and cleansing the parts, the scalp was dissected up, and one of the fragments of bone raised with considerable difficulty by means of an elevator, without trephining; it was then an easy matter to remove the remaining pieces. Free hæmorrhage followed, which was controlled by compression. In the after treatment of the case it was found that the granulations, which grew rapidly, forced their way through the meshes of the gauze dressing, and produced such close adhesions to it that the removal of the dressing was attended with considerable bleeding and much pain, and to obviate this a dressing, with wicking for a drain and in contact with the wound, was substituted, at the suggestion of Dr. Swan, and worked admirably.

Case 8.—Reported by Dr. A. P. Clarke. A boy, age 11 years, fell seventeen feet striking his head on a plank walk. He immediately had convulsions, vom-

ited, became partially unconscious and soon passed into a comatose condition with stertorous respiration. An incision was made by Dr. Holt over the supposed seat of injury, between the superciliary ridge and frontal eminence of the left side, and a button removed with the trephine. There was no manifest injury to the outer table, but a multiple fracture of the inner table was found which was pressing upon the dura and produced some laceration. The depressed portions were raised, and some splinters removed. The hæmorrhage, at first severe, was controlled by application of carbolized cotton removed at short intervals, and the wound treated with an antiseptic dressing. The case made a complete recovery.

Remarks.—Dr. H. O. Marcy. Repair of the cranial bones is quite different from that of the long bones: this was first called to his attention by Ercolani. At the line of primitive injury the periostium, instead of regenerating as it does in long bones, undergoes a process of necrosis, and is accompanied by an absorption of bone. A membrane may form over the opening, but there is no regeneration of bone. The best specimens illustrating this are found in the private museum of Dr. Warren, now in the possession of his son, Dr. J. Collins Warren. There are also a number of ancient skulls in the Peabody museum, showing the changes of repair. In one noted case, that has been published as a case of early trephining, a photograph thrown upon a screen, by means of a projection lens, showed fine linea fractures radiating from the central opening, and demonstrated that it was more likely this trephine-like hole was caused by an instrument of warfare. This is further supported by the fact instruments of warfare have been found which could produce a wound similar to that in the skull. A series of photographs were shown representing special injuries of the skull in the practice of Dr. Marcy and others.

A noted case of suspended cerebration that occurred in a negro, struck on the head with a sabre and supported five years by charity in a condition more like beast than man in solitary confinement, was quoted from the description of Dr. Hunter McGuire, where on the removal of compression by trephining, the first words spoken were "Where has the army moved to-day."

TWO CASES OF EXCISION OF THE KNEE JOINT.

A clinical lecture delivered at St. Barnabas Hospital Minneapolis.

BY PROF. JAMES E. MOORE,
OF THE UNIVERSITY OF MINNESOTA.

Our next patient is a girl fourteen years old, who had an attack of polio-myelitis when she was an infant, which left several groups of muscles in the right limb paralyzed. When she steps upon the right foot the knee bends inward to a marked degree, the bottom of the foot turns outward, and the femur rotates inward, so that the head of the femur is subluxated outward and backward.

The most noticeable deformity is at the knee.

As she lies here under chloroform the limb seems quite straight, but you see there is great lateral motion at the knee, and when I rotate the knee inward, and press upon the bottom of the foof, the head of the femur slips partly out of the socket, allowing a peculiar jerking motion. Now if I hold the knee so that it cannot rotate or bend inward, you see I can make strong pressure upon the bottom of the foot without causing the luxation of the hip. The patient is a bright intelligent girl, and she tells me that she has worn a variety of braces, but that they all caused chafing and discomfort, until she has abandoned them altogether. She also tells me that the slipping of the hip is a new trouble and has only come on since the knee has grown so much worse.

The ankle is strong enough to bear her weight without turning if she can but step squarely upon it, and the hip slips only when the femur is rotated inward; therefore, I have concluded to excise this knee joint and in this way enable her to step squarely upon her foot, and prevent the bending and rotating inward.

I shall not use an Esmarch bandage, as I wish to close the wound without drainage, and the oozing will be much less afterwards if I do not use it. I now begin my incision well down on the inner side of the knee, and bring it over the patella, to the opposite side, cutting well down to the bone. I next bore four holes through the patella, two on either side of the of incision, and saw through the bone. This leaves two holes in each fragment through which I shall pass a thread of cat-gut, and fasten them together. I now open the joint freely and remove the cartilage. I remove just enough from the tibia to make a flat, bony surface, to come in contact with a like surface of the femur. I now saw a slice of bone from the femur, taking a little more from the inner than from the outer condyle, because it is somewhat hypertrophied. I now fasten these two flat surfaces together with steel nails, and tie the fragments of the patella together. The outer wound is closed with cat-gut, and the dressings applied. Over the surgical dressings is applied a plaster of Paris bandage, extending from the toes to the body. At the end of one month I expect to remove these dressings and find good union throughout,

We will now adjourn to the City Hospital, where I shall perform this same operation upon a man thirty-five years old, for a deformity of the knee. This knee you all see is strongly flexed, and the tibia subluxated backward. The hamstring tendons were cut recently, but the popliteal fascia was so contracted that the limb could not be straightened. Since the cause of the deformity is a paralysis of the quadriceps extensor, dependent upon a central lesion, the straightening, if accomplished in this way, would only be temporary; but by stiffening the knee we can give this man a good serviceable limb.

I now make a transverse incision without the Esmarch, as in the other case. It will be necessary to shorten this limb more than in the other case, on account of the shortening of the soft parts in the popliteal space. After removing a thin slice from the tibia and fully an inch from the femur, you see it still requires considerable force to straighten the limb. I now make an incision through the skin of the popliteal space, bringing these dense bands of fascia into view. In this way I can accomplish with safety, what might be dangerous, if done subcutaneously, in this important anatomical region, with the anatomical relations disturbed as they are in this case. Now that these bands are cut, you see I can easily bring the limb into the desired position. I now close the wound in the popliteal space with cat-

gut, and proceed to nail the tibia and femur together. On account of the thickness of the section taken from the femur, the patella can be of no possible use, so I remove it and close the wound with cat-gut. There is such persistent oozing from the deeper parts of the wound that it will be advisable to introduce drainage tubes in this case, which is something I dislike to do, as it increases the danger of subsequent infection of the wound, and will necessitate an earlier dressing. The usual dressings are now applied, and over them a plaster of Paris cast from the toes to the body.

Two months after operation case 1 is able to walk better than before the operation and is improving rapidly. Case 2 is walking upon his leg and is delighted with the result.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(*Continued from page 340.*)

The authors conclude that the human organism is in no wise apparently affected by the most powerful magnets known to modern science; that neither direct nor reversed magnetism exerts any perceptible influence upon the iron contained in the blood, upon the circulation, upon ciliary or protoplasmic movements, upon sensory or motor nerves, or upon the brain.

While our observations with reversed magnetism indicate that no appreciable influence is exerted upon the brain when subjected to 280 magnetic reversals per second, we were unable to experimentally alter this frequency, and the possibility remains that some particular frequency or frequencies might affect the nervous system. We hope to decide this question, within a suitable range of frequency, at some future time.

The ordinary magnets used in medicine have a purely suggestive or psychic effect, and would in all probability be quite as useful if made of wood.

While we have demonstrated conclusively the above facts, we do not deny the possibility of there being invented some day magnets enormously more powerful than any yet known to us, which may produce effects upon the nervous system perceptible to some of the sensory organs; for magnetism is certainly a remarkable force, and we find it very difficult to understand why it seems to have no influence whatever upon the human body and its wonderfully delicate neuro-electric mechanism.

Discussion.

Dr. Hutchinson remarked that he thought he had read about some similar experiments before.

Dr. Brown said that during the past summer, he had seen some experiments by Dr. Louis of the Hôpital de la Charitè, with a straight magnet, and a hypontized patient. When one pole was pointed at the subject, she became angry; when the other pole was presented, she evinced signs of joy. Perhaps Dr. Hutchinson referred to these experiments.

Dr. Peterson said that he had carefully looked up the literature of the subject, and had found nothing of the kind with the exception of some experiments made by an American twenty or thirty years ago.

Dr. Rockwell thought just such papers as these were needed, for it is equally important to tell us what a thing will not do, as to tell us what it will do. Many years ago, he had become much interested in magnetism, and had made many experiments with it. It had been stated that a worm could be killed with the negative pole of a magnet, but the only way in which he had ever succeeded in killing a worm with a magnet, was by crushing it with the end of the magnet.

Dr. Nunn rose to thank the authors for their admirable paper.

Dr. Herdman said he did not know of any series of experiments which had done so much to settle this vexed question about the utility of magnetism in medicine. He believed that wooden magnets had been tried, and yielded equally good results; hence, it would seem now to be definitely proven that magnetism has no therapeutic power, and what has been attributed to it is realy due to hypnotic suggestion.

The President said he was with Charcot for six months during the time of his first remarkable experiments in hypnotism, but they had nothing to do with the present subject, except that Charcot denied vigorously that in recent hemiplegia where the motor system was considerably demoralized, and the anæsthesia persisted, that the application of a magnet here produced return of sensibility in the hemiplegic. But we all know how easy it is for such a change to be brought about by various measures. He would like to ask if the authors had formulated any theory in their own minds to explain this fact that such powerful magnets are devoid of appreciable influence on living organisms.

Dr. Peterson, in closing, said that the experiments detailed in the paper, were undertaken with the largest known magnets, and with the idea of setting this matter at rest. They had formed no opinion as to the reason for their exerting no effect on living matter.

Mr. Carty said that he understood it had been asserted that magnetism exerted some influence on *morbid* conditions. It did not seem probable that it would have any such effect, but the strength of the paper would have been still greater if this point had received attention.

Dr. Peterson replied that in experimenting on pathological subjects, it would be impossible to shut out the influence of the mind, and hence such an argument would be unsatisfactory.

ELECTROLYTIC ACTION IN REMOVAL OF CERTAIN NEOPLASMS.

By Dr. Donald S. Campbell, B.A., M.D., Detroit, Mich. (Read by title.)

The achievements of electrolysis in the destruction and absorption of general neoplastic matter, wherever situated, have of late been presented with considerable force by various electro-therapeutic observers, as an electro-chemic agent of great value, which the more skeptical now admit.

But that it is capable of producing electro-chemic changes in every form of new formation, as in non-inflammatory growths, has not been clearly shown from the various clinical statements thus far reported. And that it is capable of inducing chemical changes in morbid organic structures, am impressed with a doubt. But the time may soon arrive when we may be able to combat them as readily as we can a common inflammatory growth. Yet are we sufficiently acquainted at present with the quantity of electrical dosage required to disturb and arrest the development of morbid fungi, without inducing increased manifestations of their functions and growth? Since the inflammatory new-formations are chiefly caused by some chemical or mechanical injury, the process of growth usually ceases on their removal; while in the non-inflammatory growths, where a sort of special predisposition of the tissues exists, to enable

these irritants to excite their development, a wide difference of tissue character is exhibited, which apparently defies every powerful remedial agent at our command to eradicate. Indeed, the fact remains, that on each and every excitement, their functional developing properties generally increase. But, since electrolysis has proved itself to be a powerful destroying agent in all classes of inflammatory growths, and an agent of exceedingly rare value in every form of chronic hypertrophied conditions, we may assume, at least, that it is capable of combating morbid organic matter, though some of our best electro-therapeutists construe differently. However, for sake of argument, based upon my own observation, I will briefly report one of the most favorable cases which happened to come under my notice, as a fair test of the capabilities of electrolysis, as a chemical absorbent of morbid organic structures:

A Mr. G., fifty years of age, of good family history. German extraction, resident of Detroit, occupation liquor dealer, consulted me two years ago last May, for difficulty of breathing. He complained of some pain, but did not experience any difficulty in swallowing. His body appeared well nourished, with no evidence of either a cancerous or tuberculous cachexia.

The difficult breathing came on gradually, and began to manifest itself about four months previous to his consulting me, until he found it almost impossible to assume a recumbent position. At this time I made a careful examination of his throat by the aid of the laryngoscope, and discovered a rather large swelling in the free extremity of the epiglottis, which interfered considerably with its vertical action during respiration. In concluding the examination, and after giving him the actual facts of the case and its probable outcome, I advised him, after his refusal to surgical measures, to try, as the next best thing, electrolysis, to which he consented. A negative puncture was made in the centre of growth, with steel needle, under maximum strength of 50 milliampères, for five minutes' duration. This was repeated at intervals of four days for two months, but to no satisfaction; for though the abnormal tissues actually shrunk immediately around the points of the punctured parts, the growth gradually increased around them, and to other portions of the tumor, as well as to encroach upon the subjacent tissues. The positive puncture was next resorted to in the same manner as the negative, but with no better results, though I fought manfully to stay the progress of the disease; but all to no purpose. Steadily it advanced until all the tissues of the throat became involved, resulting in death three months after he received the first treatment. Now, as I claimed in the outset that it was doubtful whether cancerous disease could be destroyed by electrolysis, however mildly the current might be applied, as such diseases are not amenable to the continued use of irritants. Indeed, I endeavored to the best of my ability, to stay the progress of the disease in this case,—being such a favorable one for a fair test of the merits of electrolysis,—but was thwarted in my earnestness of purpose, as I have been in all my other cases, to accomplish the result. Yet the time may arrive when we will be able to contend against every form of malignancy, by the employment of galvanism, but not until then can I have faith in its chemical resolvent properties, in that class of new-formations. But the scientific truth still remains, that the skepticism of electrolysis in abating an inflammatory new-formation, "has largely given way to confidence and to calmer judgment."

Now that which I have stated in a former paper, on the philosophy of electrolytic action, in the destruction and absorption of inflammatory deposits resulting in new-formations, is, conservatively speaking, established to-day, viz.: that, if electrolysis is intelligently administered, it facilitates the destruction and absorption of various neoplastic growths, erectile tumors, lymphatic enlargements arising from interstitial deposits of lymph, and other structural abnormalities arising from organized inflammatory matter, better and safer than any other remedial agent at present known. For, clinically speaking, the results which we have obtained from its employment are sufficient proof of its successful and enduring qualities.

In that class of glandular growths, called adenomata, where the tissues composing the follicles of the lymphatic glands are, by reason of certain mobile cellular elements of their endothelium, materially increased by an abundant emigration of white blood corpuscles, which steadily develop into abnormal proportions, by a distinct uniformity of functional activity, the use of galvanism is clearly indicated; for it has proved itself capable, to my entire satisfaction, in over one hundred cases,—and to every other electro-therapeutist, in destroying and absorbing abnormal glandular structure, when properly administered, without producing the slightest irritation to the surrounding tissues, or any inconvenience to the patient.

Now the clinical field from which I have carefully noted these facts, by observing the effect which electrolysis had upon adenoid vegetations, was chiefly confined to the mucous surfaces of the upper air passages, viz.: posterior nares, vault of pharynx, larynx, base of tongue and tonsilar regions. And though the use of the stronger astringents, like perchloride of iron, iodine, chloride of zinc, etc., or the direct application of caustics, or the galvano-cautery, have been successful agents in destroying such fungosities, yet the fact remains, that their operations are always tedious and frequently irritating to adjacent structures, whereas in the electro-chemic method, decomposition of the growths occur almost immediately after the first sensible negative puncture, without disturbing the surrounding healthy tissues, and usually do not require more than six of them, on an average, to complete their destruction, under current strength varying from three to twenty-five milliampères only, for at the most ten minutes duration. Indeed, all things considered, am fully justified in endorsing it as an agent better adapted to suit the wants of the occasion than any medical or surgical device we are acquainted with, notwithstanding the splendid achievements I have obtained from Prof. W. C. Jarvis' wire écraseur. This instrument, of course, is available when the growth can be secured by transfixing needles, as in hypertrophies and polypi of the turbinate bodies and myxo-fibromata of vault pharynx, etc., where they are frequently located. But where the growth cannot be properly extirpated by either the crushing or cutting process, without injuring important structures, or where a surgical procedure would be highly proper, but cannot be performed on account of the location, as on the posterior surfaces of the turbinated bones, superior portion of the posterior surfaces of the soft palate, or when situated on any portion of the tissues of the larynx, especially if they are vascular at all in character, nothing can accomplish their removal so handily or so safely as the electro-chemic puncture, providing the current is sufficiently intensified to suit the demands of the case. As an illustration of this, I will briefly report a case that happened to come under my notice, which in my mind demonstrates the conformity of this statement.

Mr. G., an employe of a manufacturing enterprise of Detroit, forty years of age, of good family history, was brought to me for treatment three years ago last September, for aphonia. He began to lose his voice about four years previous to his consulting me, shortly after suffering from a severe attack of laryngitis. It gradually grew worse until he lost his speech entirely, which occurred about a

year afterwards. During this time he had been treated by his family physician, but subsequently gave way to a throat specialist. The latter physician discovered the existing trouble, which proved to be a series or cluster of adenoid growths, arising from the mucous surfaces of the ventricular and inferior portion of true vocal bands, preventing them while in a state of vibration, to approximate. His treatment consisted chiefly of the spraying of both mild and strong astringents to the cavity of the larynx, twice a week, and occasionally with the direct application of caustics. He was treated in this manner for about three years, and although a slight reduction of the size of the laryngeal growths took place, no perceptible change in his voice occurred, showing that they interfered still with the true vocal bands. This was the condition of his larynx when I first examined him, with the exception that the general mucous covering of the various bodies of the larynx appeared thickened, congested and granular, as if they had undergone severe punishment from the long continued use of irritants. From this history of the treatment he received, I was fully convinced of the uselessness in again resorting to the use of astringents, however mildly they might be applied. So then, I tried faithfully to snare the growths with Jarvis' Ecraseur. This I found was utterly impossible to accomplish, after several repeated attempts, owing to their having such a broad base, and to the super-sensitiveness of the immediate surrounding tissues to the wire loop, even when local anæsthetics were freely used. I then concluded to try Electrolysis in the following manner, viz: The cavity of the larynx was first rendered aseptic by a warm spray of Dobell's solution, then thoroughly anæsthetized with four per cent. solution of muriate of cocaine. A negative puncture was next made with a laryngeal needle (perfectly insulated) at the base of one of the growths. This was maintained in that position for about five minutes, under a current strength varying from five to thirty milliampères, when it was suspended for a week. At the end of this time it was examined and found to be considerably shrivelled immediately around the punctured part, and changed from a pink to a dark muddy hue.

A negative puncture was again resorted to, in the same manner as before, with similar results, but with much better effect,—the growth was almost entirely obliterated a week following this treatment.

The remaining neoplasms were treated in like manner separately, although they did not require more than three electro-negative punctures to thoroughly destroy and absorb them. Yet I made on an average, six, with an intensity of current varying from five to thirty milliampères, for about six minutes duration, to warrent their absolute absorption. And although it required about a year's steady treatment to absorb these growths, the success attained by electrolysis is sufficient evidence of its absorbing influence, and also being more reliable and safer than any of the other agents which were so faithfully used without obtaining fruitful results.

The patient's voice was restored just as soon as the growths were removed from the vocal apparatus, and has remained so up to date, with no evidence of the recurrence of the glandular tumors, proving that the electro-chemic treatments were perfectly successful and satisfactory, and better adapted in removing this class of structure—including also the angiomata and papillomata varieties, especially of the mucous structure of the larynx, than any medical or surgical procedure at present known.

Now in regard to simple hyperplasias and fimbromata, which properly belong to that class of new formations which are characterized chiefly for being independent of any active inflammatory process, having the virtue of development and growth in their own activity, a vast difference of tissue character is displayed between them and the inflammatory growths. The former are generally hard and firm of texture, encapsulated, and contain but few blood vessels; while the latter are, as a rule, more spongy in character, consisting of numerous small saccules, lined with several layers of small epithelial cells, grouped together, and separated merely by connective tissue, in which ramify numerous small blood vessels; showing that the movements of the fluids from the positive to the negative punctures can be carried on more readily and in larger quantities, producing thereby greater disturbance of the functional capacity of the proliferating cells, on account of being deprived so suddenly of their nutritive supply, than in the firm fibrous tissue growths, under similar intensification of current. Indeed, my experience thus far has been that, as growths vary as to their natural vitality and composition, as is observed so markedly between these varieties, the electrical dosages will invariably vary correspondingly. Those of non-inflammatory origin have greater resisting power than the inflammatory, and require longer, steadier and more highly intensified current to cause their retrogression. For as abnormal structures of fibroid character possess in no small degree the tenacity of the natural cell—both consisting of a homogeneous mass of wavy interlacing fibres of ultimate strength and vitality—it is reasonable to suppose that a greater intensification of electrical fluid is required to disturb their functional capacity, than those constituting the angiomata, papillomata, adenomata, etc., though their conductivity may be nearly equal. As an instance of this, I have in mind a dense fibroid growth of vault of pharynx, of medium size, in which thirty electro-negative punctures were made, of a highly intensified current, varying from twenty-five to fifty milliampères, as strong as the patient was able to bear, for fifteen minutes' duration, before a sensible reduction of the growth occurred; whereas a feebler current of a maximum strength of fifteen milliampères only, on several large adenoid fungosites of posterior nares, did not require, on an average, more than eight, for at the most, five minutes' duration.

Another reason why abnormal fibrous tissue require more intensification of current to arrest their development than those just enumerated is their indifference to the cataphoric action of electricity, an essential physical principle necessary to aid chemical decomposition. This, of course, is due to the poor vascularity and to the presence of a very small amount of saline and neutral fluids which they contain. But no one can fail to realize that more depends upon the absorption of the liquid matter contained in any diseased structure, whether it has to be extracted directly from them or not, than to electrolytic action, though it is acknowledged it interferes with both the vital and chemical energies of living cells. Yet it is certain this osmotic action, or transportation of liquid particles from the positive to the negative pole, in which the elements of the tissue growths are bathed, lay the cellular substances in the electrolyte open to chemical decomposition; for, just as soon as functional activity of cell life ceases by any process, its existence is cut off by the execution of chemical laws. Hence in electrical osmosis we know definitely its accomplishments, that of accumulating saline and other fluids, the essential elements which convey the nutrition and support the metabolism of the diseased cellular tissues, around the negative terminal, thus facilitating the action of chemical decomposition and absorption.

Recognizing the importance of this fact, let us take as a clinical illustration of the actual merits of the galvanic current, based upon a series of careful electro-negative punctures, a typical case of fibroid growth of the superior por-

tion of the pharyngeal wall, which happened to come under my notice. I began first with a five minutes current application of ten milliampères every fourth day for about a month, but with no appreciable difference in its size or appearance. I then applied a stronger current, 20 milliampères for about eight minutes, twice a week, with same number of treatments, yet with no better results; no change whatever occurred in the growth to denote its retrogression. A much stronger current was next administered, beginning first with twenty milliampères, gradually increasing it to forty for about twelve minutes' duration; the effect of this highly intensified current was immediately recognized. Around the negative needle a continuous current of gaseous bubbles occurred, which rapidly developed into a watery fluid, showing, of course, that the fluid secretions of the tumorous structure itself was being transferred by electrical osmosis from the positive to the negative pole. The appearance of the growth a few hours afterwards was dark, congested and swollen, which remained for about twenty-fours, and which exuded still from its punctured surface a thin red watery secretion. But one week following this non-inflammatory phenomenon the tumor looked very dark in color, reduced in size, glazed and somewhat shrivelled in appearance, especially around the punctured part, without the slightest evidence of any inflammatory irritation in the neighboring tissues, or of suppuration of the growth itself.

The negative punctures were again resorted to, but at regular intervals, twice weekly, with similar current strength and time, and with results corresponding exactly with the effect which the first sensible current made upon it, —only more pronounced—until it was completely absorbed.

Now it is certain that the transmission of highly intensified currents through hypertrophied or other abnormal dense structures—like those comprising fibroid tissue growths—without exciting them to inflammatory action, are met with much greater resistance than in the vascular inflammatory growths. But whenever their resistance is overcome by the electro-chemic force, osmotic action immediately takes place, as it does in vascular growths with the feebler current, by absorbing the liquid substances in which the tissues are bathed, and indirectly from the tissues themselves, after the cellular elements are transposed into their original fluid constituents. This of course interferes with the circulation of the blood considerably through these structures, which naturally curtail their usual supply of the nutritive properties; thus making easy the way for their destruction by the action of chemical decomposition.

These few explanatory points, obtained from personal experience, may enable us to perceive the quantity of galvanism necessary to disturb any of the enumerated varieties, without interfering with the natural tissues. And though the myxomata, myomata, myxo-fibromata and fibromata, are quite amenable to electrolytic action—all of which are dense, non-vascular and of a highly organized character —they require longer, steadier, and a much larger quantity of electro-chemic force, to disturb them, than the vascular varieties of inflammatory origin. Indeed, the chief annoyance we frequently encounter with fibroid tumors, is the time expended in giving the current its proper electro-current tension, and the slowness with which they are dissolved or decomposed. For this reason I prefer the employment of Jarvis' wire écraseur, providing they can be transfixed without much difficulty. But in the complete destruction and absorption of every form of vascular growths of inflammatory origin, no other agent or kind of treatment can compare with it in mildness of execution, safeness, rapidity and reliability. Yet as the old saying goes, "the proof of the pudding is the eating thereof," I will for sake of clinical evidence, enumerate in a brief tabulated form the several varied cases of tumorous obstruction of the upper air passages I have treated since 1887. Each variety is separated from the others, and taken collectively, with average duration of séances, average electrical dosages, and quantity of current tension, with the results obtained:

Nature of Growths.	Number of cases.	Average time employed in each electro-negative puncture.	Average number of treatments.	Average current tension given in milliampères.	Results of Treatment, with Remarks.
Adenomata—					
of larynx	12				
of pharyngeal wall	15				
of vault of pharynx	19				
of posterior nares	14				
of posterior surface soft palate	6	M			All removed, with no evidence of their recurrence.
of tonsilar regions	25	4½	10	18	
Papillomata—					
of larynx	4				
of back and side of tongue	38				
of soft palate	7				
of palatine arches	8				
of roof of mouth	6				
of external ear	3				
of mucous structure of cheeks	5	M 4	6	16	All thoroughly destroyed by chemical absorption.
Fibromata—					
of posterior nares	16				
of vault of pharynx	12				
of pharyngeal wall	3				
of posterior surfrce soft palate	2				
of base of tongue	2	M			All thoroughly destroyed, with no evidence of their returning.
of summit of epiglottis	1	7½	28	36	
Malignant disease—					Results very unsatisfactory. At no time did electrolysis appear to stay their progress, however mildly the current was given, with sufficient volume to induce structural change. Death occurred in each case, after giving galvanism a good trial and an honest test.
of epiglottis	1				
of superior portion of the gullet	2				
of vault of pharynx which occupied posterior orifices too	2				
of lower lip	1	M			
of side of tongue	1	7	35	38	
Hypertrophies—					
Of inferior portion of turbinate bodies	35				
of middle portion of middle turbinate	10				
of posterior portion of superior turbinate	10	M 6	22	25	All reduced to their normal condition.
Nasal polypi—					
of nasal tracts	30				
of external ear	5				All destroyed by complete arrest of the blood supply by passing the needle, highly electrified, through their base from which they obtain their nourishment.
of lower portion of pharyngeal vault	2				
of superior portion of gullet	2	6	20	18	

You will observe from this brief tabulated report, that I have confined myself wholly to the operation of electrolysis on affections pertaining to my special work, viz.: diseases of the upper air passages. So it is just to concede that a fair test was made in order to know its exact accomplishments in each stated variety. And though the variations of the number of electrical dosages, even in same character of disease, are noticeable, they are chiefly due to the idiosyncrasies of the patient, and to slight difference in the vascularity of the growths; some offer greater resistance than others. But just as soon as the electrical force was sufficient to induce a decided hyperæmia in either case, osmotic action took place, which deprived the parasitical cellular substances of nutritive support, resulting in their death and ultimate chemical absorption. Indeed, it is very difficult—yes, almost impossible, to approximate a uniform system of electrical treatment. We have to determine from personal clinical experience the amount of electrical force

required to establish chemical changes in the pathological lesion. And that which I have stated in a former paper are facts that no electro-therapeutist can dispute, that "no rule can be laid down for either the experienced or inexperienced, though the former, from a much wider observation, can detect its primary impression sooner, and utilize its resolvent properties to better and safer advantage."

DISCUSSION OF THE RELATIVE FŒTICIDAL VALUE OF THE GALVANIC AND FARADIC CURRENTS IN ECTOPIC GESTATION.

The participants were requested to specially empasize the following points:

1. How does electricity destroy the life of the fœtus?
2. Which current should theoretically be more certain in its results, and what is the individual experience?
3. Can electricity be depended upon to accomplish the desired end? And why?
4. Should the galvanic current be used interrupted or constant?
5. What is the best method of applying the agent?
6. What are its dangers? And how are they to be avoided?
7. Who should apply it? Can it safely be trusted to the general practitioner?

Dr. Rockwell, in opening the discussion, said that the manner in which death is produced is an endless field for discussion. We know that in executions by electricity the heart is at once paralyzed, and various post-mortem examinations on those dying from the effects of electricity had shown that the heart contracts with such tremendous force as to cause even rupture of its blood vessels. From our theoretical knowledge of the action of the different currents of electricity, he would say the galvanic current was to be preferred for the destruction of the fœtus, for it does not kill simply by mechanical action, as the faradic current does, but it develops heat, modifies endosmosis and exosmosis, and produces various other effects which have an important bearing upon this subject. His experience also led him to prefer the galvanic current. He had treated twenty-three cases of extra-uterine pregnancy by electricity, and in every case, except one, with satisfactory results. In that one the patient died, not because of, but in spite of the electricity, for the attending physician admitted that there had been a slight rupture previous to resorting to the electricity. Operative surgeons say that they would rather use the knife, but perhaps if it came to the treatment of some one in their own families they would have a different opinion. He had known of many cases in which the faradic current had been used, and it had been necessary to repeat the application as many as ten times before it was evident that the fœtus was dead, and these patients suffered much more than they would have done with the galvanic current. His custom was to treat a case three or four times, but he believed that one application would always kill the fœtus without the slightest pain or danger to the mother. There is, of course, the possible danger of rupture of the tube. His method was to quickly increase the strength to the desired point and interrupt it several times, then as quickly decrease it again. But where great caution is necessary he employed the continuous current without interruptions. The beauty of this treatment is its simplicity, and therefore, it can not only be, but should be attempted by the general practitioner. A few years ago, at a meeting of the American Gynecological Society, one of the most eminent electro-therapeutists in the world made the astounding statement that *electrolysis* was to be employed in this treatment. The speaker, continuing, said he had also used voltaic alternatives, but considered interruptions much more efficient.

Dr. Malcom McLean, of New York, said that although his experience had not been large, the results had been deffnite, and the cases, he thought, had been carefully observed. He considered that the life of the fœtus was destroyed, not by the current acting directly upon the circulation of the fœtus itself, but on the extremities of the chorionic villi, and if this fact were borne in mind it would help the surgeons to come to some conclusions concerning this method of treatment. Although the purely mechanical effect of the faradic current is sufficient to destroy the life of the fœtus, he preferred the galvanic current, on account of the mysterious changes which it produces in the tissues, and its positive action on the chorionic circulation. The question as to the reliability of the method he answered most emphatically in the affirmative, providing the treatment were carried out at the proper time, in the proper manner, and in the proper cases, after making a proper diagnosis. This treatment should be resorted to before the chorionic villi had emerged into placental tissue, for then the condition is unsuitable for electrical treatment. He had tried both the interrupted and the constant galvanic current. If the pregnancy had advanced beyond the twelfth week, and caution was necessary, he would employ the constant current in the manner described by Dr. Rockwell. He places the clay electrode over the abdomen on the side where the ovum is located. The vaginal electrode is a brass ball surrounded by clay, and enclosed in a wet chamois leather bag, which is placed well up in the vagina behind the uterus. One thorough application should be sufficient, but as a precautionary measure, he usually repeats it two or three times. It is easier to say what dangers do *not* exist, than those which do, for he saw no reason for any more danger from this treatment than from any other manipulation, as of a speculum. He was well acquainted with the fatal case reported by Dr. Rockwell, and he was satisfied that the rupture had taken place before this treatment was instituted. Any practitioner who is able to make a correct diagnosis of ectopic gestation, and who can place the electrodes in proper position, is qualified to undertake such treatment. The important point to remember is, that the electricity destroys the ovum, not merely the fœtus inside of the ovum. The speaker then exhibited a small fœtus, as an illustration of the absurdity of the argument against the electrical treatment of this condition, that the fœtal remains may act as a dangerous foreign body.

The president asked for further details in regard to his theory of the manner in which the death of the fœtus is produced.

Dr. McLean replied that while he could not prove his position, he felt sure in his own mind that the death was due not so much to the effect of the current on the nervous system, as upon the circulation, inasmuch as the life of the child is closely dependant upon the chorionic connection with the mother. The vitality of the fœtal envelopes was also destroyed, hence, it was impossible in the early stage at least for a foreign body to be left. Only a few weeks ago he exhibited before the New York Obstetrical Society a patient whom he had treated successfully by electricity for an ectopic gestation, six months before this, and three experts failed to find any trace of the fœtus.

Dr. Goelet, of New York:—I believe electricity destroys the life of the fœtus when the faradic and also when the interrupted galvanic current is employed by the shock it induces producing paralysis of the heart muscle. It is also probable that the contractions induced in the muscular structure surrounding the fœtal sac by compression of the feeble fœtus will cause arrest of the heart's action. The current likewise produces a profound disturbance in the fœtal circulation owing to the compression of the nutrient vessels of the chorion, and at a later stage, those of the placenta. It is known that contractions of the uterus at term will retard and even arrest the action of the heart of

the fœtus at that age. How much more susceptible the fœtus of only two or three months' development must be to such influences. Dr. Lusk, in his excellent work on obstetrics, says (page 97) "At the beginning of pain (uterine contraction), especially after rupture of the membrane, the heart sounds often become more frequent; on the other hand they become slowed during the height of the contraction and may even for the moment cease altogether, either in consequence of the compression of the child's body or as the result of the disturbance produced in the placental circulation. If at any time the frequency of the heart beat permanently, either rises above or falls below the normal average, the child's life is to be regarded as endangered." Authorities state that the heart becomes functionally active by the third week of gestation,[1] but the action must be feeble and easily arrested even as late as the third month. It must be considered also that the fœtus is more exposed to outside influences in the tube than when surrounded by the firm muscular structure of the uterus; that in the first instance the gestation sac lies close to the vaginal wall with very little tissue intervening between it and the surface of the vagina. Hence very little resistance is encountered by the current, at this point at least.

2. The faradic and the galvanic current when interrupted should, I think, possess greater fœticidal power than the constant galvanic current. Just how the constant current destroys the life of the fœtus, if it does, I am unable to decide. If the faradic current is used I believe a positive result may more confidently be anticipated if either the primary current or that derived from the short coarse wire coil is employed, because the volume of these currents is greater and the impulse imparted is more profound. In two cases of my own, one of which has been reported, the interrupted galvanic current was employed with satisfactory result in both instances.

3. I believe that electricity, if properly employed, can be depended upon to destroy and prevent the growth of the fœtus (extra-uterine). My reasons have been stated.

4. The galvanic current should, I think, be used interrupted, until it can be more definitely proved that the constant current is absolutely reliable for this purpose, or it can be shown how its action can destroy life.

5. In order to increase its effectiveness and render the result more certain the current should be concentrated upon the mass containing the fœtus, and for this reason I believe the best method of application is with one pole against it in the vagina, and the other introduced into the rectum and passed up beyond the mass so as to include it directly between the two. In this manner not only is it possible to use the current more concentrated, but the resistance is very considerably diminished and both poles are brought closely into relation with the gestation sac. Confining the action of the current to the location where its action is required is always a point to be desired, and in this instance is particularly important.

I believe likewise, that when the faradic current is employed, either the primary current or the secondary current as obtained from a short, coarse, wire coil will be more effective for the reason stated above.

6. The dangers of the method appear to be more fancied than real, since no untoward result has been reported directly attributable to the use of electricity. Rupture of the tube is possibly a result which, theoretically, might be anticipated from the nature of this treatment, and one which those who favor primary laparotomy contend is always imminent, but as no such result from electrical treatment has yet been reported in the large number of cases recorded theoretical objections should have no weight. If such danger is, however, recognized, and it is true it cannot be absolutely denied, then care in its administration is the surest safeguard in employing electricity for this purpose. And this leads up to the answer to the seventh question, who should apply the remedy?

7. Certainly one who is thoroughly familiar with the agent, and understands the action of the different currents, is best qualified to administer it when once a correct diagnosis has been reached. At the same time, however, a familiarity with the female pelvic organs, and how much interference they will tolerate when diseased, is essential both for the safety of the patient and the reputation of the remedy. The general practitioner may be competent to make a correct diagnosis and may be qualified to do the operation, but it is undoubtedly true, that he is disqualified through lack of sufficient experience with such cases, which are rare.

Dr. A. Brothers said that years ago, Dr. Lenz pointed out that the fœtus was destroyed by the direct shock, and by interference with the chorionic circulation, and he proved his position by experiments on small animals. The later experiments of Martin confirm this view. The speaker considered the galvanic current most effective, but in a series of forty-three cases which he collected, and published some years ago, twenty-one were treated by faradism, sixteen by galvanism, two by both forms, one by franklinism, and in one, the method was not stated. His own experience was limited to one case, and in this one the faradic current was employed. The pain was very intense, requiring the administration of morphine. The electrical treatment was therefore a reliable one, but it is preferably conducted under anæsthesia, and if the faradic current be used the application should be repeated a number of times. In one of the early reported failures Braxton Hicks used the faradic current once only, and becoming discouraged, he punctured the cyst, and lost his patient. The interrupted galvanic current is theoretically the proper one, unless there is imminent danger of rupture of the tube, and the simplest method is to use a large flat sponge on the abdomen, and a vaginal electrode placed directly in contact with the mass. He saw no special advantage in introducing the electrode into the rectum. Danger could be avoided by a proper selection of cases; thus, Janvrin's fatal case had exhibited symptoms of rupture before the electricity was applied. After hæmorrhage has begun we have no right to use electricity; but granting that there is no hæmorrhage, and that gestation has not proceeded further than the third or fourth month, electricity should be tried before resorting to laparotomy. The best answer to the last question, was that he was himself a general practitioner, and yet he had saved one patient.

Dr. A. F. Currier said that while a believer in the utility of electricity in many conditions, he also believed that its field was quite a limited one. Ectopic gestation is a most terrible accident, and it is more frequent than has been generally supposed. It demands very certain and radical measures. Undoubtedly, during the first few weeks, the galvanic current would be indicated, but it is just as this time, that the diagnosis is so very doubtful, so that having employed electricity we cannot be sure that the case ought to be counted as a success for the electrical treatment, because we are not certain that ectopic pregnancy really existed. On the other hand, a current which would be strong enough to produce contractions, would also expose the patient to the danger of rupture of the tube. Simple rupture of the tube and extrusion of the fœtus into the abdominal cavity, are not the only dangers, for granting that the fœtus has been killed in these cases in which hæmorrhage has occur-

[1] Preyer (Parvin's Science and Art of Obstetrics, p. 143) says it cannot be doubted that the heart begins to beat at the beginning of the third week.

red, there is still a quantity of material left behind which may give rise to sepsis, so that the patient has escaped one danger only to fall into another. For these reasons, if the gestation were beyond the first month, he would be unwilling to subject the patient to anything except a laparotomy, and the records of operative cases show a very large percentage of recoveries. In his opinion we are subjecting the patient to unnecessary danger by using an agent which at best, is uncertain, both in its immediate consequences and in its ultimate results.

Dr. Goelet said he did not mean to imply that every general practitioner was disqualified, but only that in view of their necessarily limited experience only those should undertake this treatment who live remote from medical centres.

Dr. J. H. Gunning found in experiments on rabbits, that when the skin of the abdomen was removed, and the current directly applied to the cervix, a vermicular action was produced a contraction beginning at the positive pole and spreading to the negative pole—and when kept up for a sufficient length of time portions of membrane were detached from the uterus. These experiments led him to conclude that the interrupted current was the better one, and that much danger would be avoided by it uses, on account of this special action on the tube. It seems also to have a tendency to start the ovum towards the uterus. There are more cases of death produced by the knife than by electricity, and he thought that when employed in the early stage, electricity was one of the most satisfactory and harmless agents at our disposal.

The President said that Dr. Gunning's experiment was an exemplification of the electro-physiological law of contraction of muscle. A continuous current cannot produce a contraction of muscle by acting upon the nerve; it produces simply a condition of diminished excitability of the nerve, but it can produce a contraction if applied directly to the muscle, particularly if the muscle be unstriated, in which case the contraction will be vermicular. This was important to bear in mind in the discussion.

Mr. Carty said he wished to touch upon the effect of electricity when considered apart from the body. If two electrodes were directly touching the body upon which we desire to act, by raising the potential, the mechanical attraction between those two plates would be correspondingly increased, and it was conceivable that a sufficiently high potential might be employed to actually crush out life. With an alternating current of proper potential and proper interruptions it would be possible, without metallic contact, to kill a live organism placed between these plates. In the human body, we must consider the intervening space between the point where the electrode touches the body, and the fœtus. If the muscles act as condensors, as has been stated by some authorties, an alternating current would be necessary. The oxygen and hydrogen freed as a result of the electrolysis produced by the current, would tend to re-unite and would produce some mechanical or chemical effect. He hoped that these remarks, from the standpoint of the physicist, might serve as a guide to medical men in their investigations.

Dr. Brothers said that the chief argument used by Dr. Currier against the electrical treatment was, that something dangerous was left behind in the abdomen after the death of the fœtus. The speaker had communicated with all those who had reported cases of extra-uterine pregnancy treated in this way, asking for a report on the condition found after considerable period. Twenty-five cases are thus traced, the period at which the later examination was made varying from two to ten years after the electrical treatment. In a very large number of these, the mass had entirely disappeared, in all the others, it had greatly diminished in size, and in not a single case was a secondary laparotomy necessary for the removal of the mass.

Dr. Hahn remarked that nothing had been said about the dosage of the current.

Dr. Goelet said that Martin found in his experiments with eggs that when a constant current of twenty milliampères was used for five minutes it was sufficient to kill "the chicks," and the speaker thought if the galvanic current was interrupted, twenty milliampères should be sufficiently strong for the treatment of extra-uterine pregnancy. The faradic current should be used as strong as can be borne.

Dr. Goelet said be had written an article advocating the use of bare metal electrodes, both in the vagina and in the rectum. With a current of twenty milliampères, for a short time they were not harmful, and the effect was better.

Dr. Gunning said he used a current of fifteen milliampères.

Dr. Hahn said he would distrust very much the efficiency of a current of fifteen milliampères, for the reason that he had made a negative intra-uterine application of forty milliampères to a lady not known at the time to be pregnant, yet she was delivered of a living child at the seventh month, or about five months after this treatment. Only the one application was made, as his suspicions were aroused.

Dr. von Raitz said that he had twice made this mistake. In one case a girl of 27 years came to him complaining of pain in the hypogastrium and slight fever, with an offensive vaginal discharge. She admitted the possibility of pregnancy but there were no signs of this condition. The pain continuing he felt sure, if pregnancy were present it must be associated with some pathological condition, so he felt justified in interfering. The negative pole covered with absorbent cotton and moistened with a solution of bicarbonate of soda was inserted into the cervix and the positive pole was placed over the tumor. After about ten treatments the discharge subsided and she felt enough better to resume work. Four weeks later she aborted and the appearance of the fœtus indicated that the pregnancy had reached the tenth week. He asked if the abortion was due to the treatment or not. In the second case, occurring under similar circumstances in a married woman, the patient was troubled with leucorrhœa. He made five negative intra-uterine applications of about ten minutes' duration, with a current of fifty to seventy milliampères she then had a very alarming hæmorrhage. In another case at the fourth month, in which he advised the induction of abortion, the faradic current was applied twelve different times and proving unsuccessful resort was had to the bougie.

Dr. Rockwell, in closing the discussion, said that he had hoped that all would agree that the galvanic current was the best for the treatment of extra-uterine pregnancy. When he first employed this method it was before the milliampèremeter came into general use. He used fifteen to twenty cells of battery with interruptions as powerful as could be borne, and the results were quite as good as those obtained subsequently when by actual measure the current was shown to have a strength of fifteen to thirty milliampères. Large electrodes should be used in order to diminish as much as possible the external contractions.

Before reading the next paper, Dr. Goelet exhibited a vaginal bipolar electrode which is self-retaining, and does not require the constant support of the hand during the application. This is accomplished by making the handle or shaft shorter and lighter than that portion of the instrument which is inserted in the vagina. The shaft is likewise made smaller than the vaginal portion, which allows the instrument to be grasped and retained by the contractions of the sphincter vaginæ under the stimulus exerted by the influ-

ence of the current. Bipolar faradization which consumes much time is thus greatly facilitated.

THE TREATMENT OF SALPINGITIS BY DEPLETION AND DRAINAGE, SECURED BY ELECTRICITY.

By Dr. Augustin H. Goelet, of New York.

In a recent discussion at the New York Obstetrical Society evoked by the writer's report of several cases of salpingitis successfully treated by electricity after laparotomy had been thought necessary, there was an evident disinclination to attribute any of the good results obtained to the agent employed, and the *rationale* of the treatment adopted was questioned. As sufficient time was not then allowed for a satisfactory explanation of the *modus operandi* of its action, I will endeavor here to throw some light upon this point, and clear up some of the mysticism which is supposed by some to surround this agent and the work of those interested in its advancement. I had thought that my previous contributions upon this subject were sufficiently clear to, at least, spare me the accusation of surrounding my methods with mystery, but I see I have either flattered myself or else I have been intentionally misunderstood.

The necessity for this explanation will be rendered more apparent, if I state some of the objections raised to the claims made in the report referred to, and some of the measures urged as equally satisfactory. One speaker thought that the advocates of electricity erred by making the subject so complicated, and full of mysticism, that it led many to lose faith in it, and even to ridicule it. The same gentleman was puzzled to understand why the different forms of electricity can be so interchangeably used and produce the same results. That if the negative pole in the uterus and the positive pole in the uterus both relieve the pain, as he understands it, what is the use of complicating matters by using the faradic current also. He thought the way to popularize electricity with the profession was to simplify it. It is a wonder this gentleman did not employ a substitute when he wanted to study medicine. If he has neither the inclination nor energy to study and understand electricity as others have had to do, he should at least, be willing to withhold an opinion upon its merits. His embarrassment reminds me of the Frenchman who could not understand the American mixed drink:

> "A little lemon to make him sour,
> A little sugar to make him sweet,
> A little whisky to make him strong,
> A little water to make him weak.
> What you call dat?"

His deductions regarding the complications of the subject, and his ideas of the indiscriminate use of the poles and action of the different currents, have originated in his own imagination as the result of an incapacity to understand it clearly without some thought and study. Strange, is it not? Because a man knows a telephone when he sees it and knows how to talk through it, is no evidence that he comprehends the principle of its action, nor is it any guarantee that he can acquire such knowledge without some investigation. If those gentlemen who find so much mysticism surrounding the subject would study electricity, learn the principle of its action and take the trouble to understand it, the mysticism would disappear. If anything more is required in reply to this criticism, it may be covered by what I will have to say farther on.

Another speaker thought rest in bed and hot water would do all that had been claimed for electricity in these cases, and that it was equally prompt and satisfactory for the relief of pain, in spite of the fact that in several of the cases reported, and notably in one case, this had been faithfully employed without decided benefit, and as a last resort, laparotomy had been advised for the removal of the offending organ.

My diagnosis was questioned by another, who did not appear to comprehend that the cases had been selected for reporting because a diagnosis sufficiently serious to render laparotomy necessary had been made by other gentlemen, before they came to me for treatment.

Another speaker thought the time involved, together with the rest and care of the general health, was as much responsible for the result obtained as the remedy employed. In reply to this I will state that none of these patients were confined to bed while taking this treatment, nor even to the house, but came to the office for treatment; and so far as the time element is concerned, I am satisfied it is not to be taken into consideration, especially since most of the results reported were accomplished after vain and protracted efforts on the part of other physicians. These included rest in bed, hot water, iodine to the vaginal vault, glycerine tampons, and in one case repeated blisters to the hypogastrium.

I do not deny the value of these time-honored measures, nor do I question their usefulness or the good results credited to them, but that they at times fail, are slow in their action, and are limited in their usefulness, will not be denied.

The principles involved in the treatment usually adopted for the relief of these chronic inflammatory affections of the appendages are depletion, counter-irritation and drainage, with perhaps stimulation of the lymphatics to promote absorption of effused material. The same indications are met by the application of electricity, with the exception of counter-irritation, which I do not think enters into its action. The older methods of treatment by hot water, glycerine tampons, iodine to the vaginal vault, rest in the horizontal position, and counter-irritation to the hypogastrium, have been so long in use that the principle of their action is pretty well understood, and the results accomplished thereby are not questioned. Of the more recent measure—dilatation, curettement and gauze packing of the uterine cavity—less is known, and, if I understand correctly, its advocates are not yet certain whether its good effect is due to the drainage afforded the diseased uterine cavity, and possibly the tubes as well, or to some unexplained alterative action set up by the procedure. Yet it has many advocates who do not question its action, nor attribute the good results to any other measure which may be employed coincidently—rest in bed, for instance, and the iodoform. I make no objection to this procedure in appropriate conditions, because I believe it meets the requirements in effecting depletion and drainage, and I have found that it accomplishes just what Dr. Polk has claimed for it. But the cases must be selected, and the operation must be sometimes repeated many times, and, above all, it necessitates the use of an anæsthetic and confines the patient to bed, for which reasons it cannot always be adopted as a matter of choice.

Of the agent under consideration—electricity—less still is known, and less pains is taken to better understand it. In consequence it is regarded as mysterious, and its effects and results are discredited because it is too intricate to be clearly appreciated without some thought and study. Exactly the same principles are involved in its action, as render the other methods of treatment valuable in these conditions. The main difference is that it is more broadly applicable than the operative procedure mentioned above; it can be employed in acute conditions; it affords prompt relief of the pain which is the most prominent symptom; and it is more effectual than the other measures so universally employed.

In utilizing this method in preference to others it is a matter of choice based upon individual experience, and as one speaker remarked, the "personal equation" enters largely into the value of the observations. My experience with the treatment of these conditions, extending over a

period of fifteen years, has led me to regard the older methods, described above, as tedious, slow and exceedingly unsatisfactory, for which reason I welcome any plan which promises more prompt and satisfactory results, and removes the necessity of a radical operation; an operation which removes but does not cure the diseased structures, and which oftentimes leaves the patient in no better condition than before, but deprives her of organs usually essential for a useful, happy and healthful existence. I am not wedded to any particular method, nor do I think that the plan of treatment I have outlined should be used in every instance, to the exclusion of all others, which I think is shown by the fact that I have frequently employed the method suggested by Dr. Polk and others, but I believe that every one is justified in pursuing that course which he has found most satisfactory. I am free to confess that the treatment by electricity has given both me and my patients more satisfaction than any other, and the more I use it, the better I know how to use it, and the more satisfied I am with the results. This is not intended as an excuse, but an explanation of my choice of methods in dealing with these conditions. Some further explanation seems necessary, however, to remove the "mysticism" which is supposed to go hand in hand with this agent; and to do this the manner of its action, and its adaptability to these particular conditions, in other words, the why and the wherefore must be given. This I will endeavor to supply.

It would hardly seem necessary to say, that in order to obtain satisfactory results with this or any other therapeutic measure, it should be used intelligently and with a definite purpose in view, yet it is frequently employed in a haphazard manner by men who wonder why they do not succeed, and their failure causes them to discredit the value of the agent. Two things are essential for success, viz.: first, an accurate diagnosis of the existing condition with the indications for treatment; and second, the agent must be employed for a definite purpose, and in a manner to meet these indications.

The galvanic current is employed for the purpose of effecting relaxation and dilatation of the cervical canal with drainage from the uterine cavity, which is accomplished by using the negative pole attached to a metallic electrode placed in the canal. A moderate strength is employed when dilatation without cauterization is desired, but an increased strength is necessary when destruction of the diseased endometrium is required. Profuse drainage resulting in depletion follows the use of this pole employed in this manner. Relaxation with dilatation of the lumen of the fallopian tubes when it is obstructed by tumefaction of the mucous lining likewise follows the use of this pole in the uterus. The same effect upon the tube can sometimes be obtained by applying the ball electrode (protected with cotton) to the vaginal vault. (If any one doubts the power of the galvanic current to overcome obstruction due to tumefaction of the mucous membrane without actual contact with that surface, let him try the effect upon nasal obstruction due to the same cause, by applying one pole on each side of the nose. A strength of five milliampères is sufficient.)

I believe it will be conceded that the obstruction of the lumen of the fallopian tube at the uterine end rarely amounts to actual occlusion, particularly in non-purulent salpingitis, but is due to tumefaction from infiltration of the mucous lining, and that even in purulent salpingitis the obstruction is often due to similar causes.

Kaltenbach[2] describes a condition of eccentric hypertrophy of the muscular coat which he believes produces an impediment to the evacuation of the tube, owing to contractions of the uterine muscular tissue. The twisting and curling of the tubes is likewise the result of infiltration of the structures composing the tube walls, and may disappear on the subsidence of the inflammation.

Bland Sutton, who has devoted much time to the study of the pathology of tubal diseases, declares that the uterine end of the fallopian tube is rarely obliterated in salpingitis even when the abdominal ostium is found sealed from inflammatory action, but the obstruction frequently found there is due to tumidity of the mucous lining. He says that the tender pelvic swellings found in these conditions are in many instances the fallopian tubes swollen in consequence of the catarrhal condition of the mucous membrane, and that the swelling, pain and tendernesss vanish with the subsidence of the inflammation. My experience coincides with his findings.

If it is possible to relieve and cure inflammation elsewhere why should this result be thought unreasonable here? And if these tender pelvic swellings can be made to disappear by subduing the inflammation, why is it thought necessary to remove them by excision?

I am reminded of the pertinent remarks of that venerable gynecologist Dr. Thomas Addis Emmet, at a meeting some years ago. He had returned from a trip abroad, he said, somewhat impressed with what was being done by Mr. Tait in England, and he determined to do his operation as soon as he found a case which he thought demanded it, but while he was still looking about for a suitable case upon which to try the operation he was very much surprised to hear a young man only a half dozen years out of college report seventy such cases operated upon.

I crave pardon for this digression.

Having removed the temporary obstruction of the tube it drains with the uterine cavity. Repeated applications of a similar nature results in permanently overcoming the obstruction, and the drainage and depletion afforded together with other measures adopted, which are to be described further on, removes the infiltration, promotes absorption of effusions in the vicinity and overcomes the inflammation. The intra-uterine applications likewise effect a cure of the endometritis which in all probability was the origin of the tubal inflammation and is directly responsible for its continuance.

The positive pole applied to the vaginal vault may be useful in relieving congestion, which effect is due to the peculiar properties of this pole, the fluid element of the tissues being driven in the direction of the negative pole, producing depletion in the vicinity of the positive; but it is to be employed only when there is no obstruction with accum mulation in the tube and when there is no evidence of the presence of pus. It may be employed in the uterus when an endometritis is accompanied by too profuse a discharge which may prove exhausting to the patient, or when there is a hæmorrhagic tendency from the endometrium, or when menstruation is too profuse, if the above contra-indications do not exist. So much for the action of the galvanic current.

The faradic current is employed in conjunction with the other for a twofold purpose; viz: to relieve pain and to remove capillary engorgement. That it is capable of rendering such service must be accepted as a fact deduced from many reliable sources, for an extended explanation of its exact action in this respect is beyond the scope of this paper. Those interested in pursuing an investigation into the truth of this statement are referred to the contributions of others as well as those of the writer upon this point. The faradic current then is utilized to annul the pain which is a most important consideration to the patient. By

[2] Martin's Diseases of Women, p. 394.

relieving capillary engorgement it effects depletion in another direction and aids the removal of the infiltration and tumefaction of the tissues involved, and by stimulating contraction of the muscular coats of the tubes peristalic movements are induced which favor evacuation.

To obtain these results it is essential that the apparatus employed shall be reliable, and capable of furnishing a current possessed of the qualities I have so strenously insisted upon elsewhere; and the applications must be made in the most careful manner to preserve a state of sedation throughout the entire séance, leaving the patient in a state of perfect calm. Unless these directions are observed success must not be anticipated.

My plan in commencing the treatment of these cases is to quiet the pain and render the patient comfortable at first with the faradic current, using the bipolar method in the vagina and the current of high tension; and it is not until the patient has been rendered tolerably comfortable and the pelvic engorgement has in a great measure been relieved that the electrode is introduced into the uterus and the galvanic current employed. It is of course understood that this plan is to be varied somewhat for the different varieties of salpingitis, but it would be impossible in this brief paper to detail the variations necessary for the different phases of this disease. Suffice it to say that the principle of treatment is the same, *i. e.*, the chief indications are to relieve the pain, remove the engorgement and tumefaction, and secure drainage from the uterine cavity and the tubes as well. It has been shown how this may be accomplished by electricity.

I trust that I have succeeded in establishing the claim that this method is founded upon a rational basis.

Discussion.

Dr. von Raitz said he had treated five or six cases of salpingitis by electricity, two of them being gonorrhœal, as proven by the presence of the gonococci. A uterine dilator was first used, then the uterine electrode covered with cotton was introduced into the uterus, and the other electrode placed over the site of the salpingitis. A current as strong as could be borne was employed.

Dr. Goelet could see no necessity for employing the dilator before introducing the electrode since dilatation could be accomplished by using the negative pole.

THE NEGATIVE POLE OF THE GALVANIC CURRENT WITH FARADIZATION AS A UTERINE DEVELOPER WITH REPORT OF CASES.

By Charles C. Cannaday, M.D., Roanoke, Va.

After having directed my attention to the "nons et origino" of uterine diseases and observing its frequency in inhabitants of cities and countries and those in the highest walks of life in this and foreign countries, and also noting their seldom occurrence in the lower classes and those doing manual labor, as well as its rarity in the uneducated, and uncivilized, I sought to find an explanation for this eccentric occurrence. If we could obtain correct statistics of the United States in reference to diseases of women peculiar to their sex, especially those relating to diseases of uterus, tubes and ovaries and compare them with accurate ones from England, France and Germany, I am satisfied, both from experience and observation, together with what information I have been able to obtain from eminent gynecologists in those countries and this, that they are more frequent, all things being equal, in the United States. The density of the population, the proximity of larger hospitals, their custom of applying early for treatment in those oriental countries may lead us to form from first observation a different idea; this is due to the more perfect development of the oriental people. The early and persistent tax on the brain in the United States, together with its continuous excitement during prime of life, combined with the modern styles of dress, results in hyper-development of brain and nervous system at the expense of some other organs. Now in the case of females, I think all will agree that it is at the expense of the uterus and appendages. The uterus is comparatively of little importance until the age of twelve years is reached, when it rapidly develops to the size of that of a virgin. We know that the uterus consists in a great part of unstriped muscular fibre, besides peritoneum and mucous membrane. We moreover have the canals of Gartner which are near, and the remains of the Wolfian bodies which are rudimentary. The modern forms of dress are donned at the age of 12 generally speaking, and at this age the brain is flush with blood from constant study, the uterus and appendages should receive blood which they do not get, and if they do get it, pressure from effects of tight lacing lessens both the volume and flow of the blood, and this pressure renders development of the unstriped muscular fibre deficient, makes it probable that the canals of Gartner will not be obliterated, and that the Wolfian bodies, that should be lost to sight, are left in such a state of existence as to be a focus for pathological developments. The nervous system must suffer from this limited flow, and all the generative organs may be in such a state of mal-development as to offer but feeble resistance to the invasion of disease.

The uterus is richly supplied with branches from the sympathetic nervous system, and defects in development, be it ever so small, must render physiological functions imperfect, and imperfection is usually attended with pain and reflex symptoms. Therefore I am thoroughly convinced that many a case of so-called uterine disease and nervous troubles in females are over-looked as to their true cause, that of mal-development, and that remedial measures are administered altogether foreign to the cause. I am inclined to think a conservative estimate is that at least 80 per cent. of females reared in the cities, and brought up in the highest circles of social life, have mal-development of the uterus and appendages, and that this mal-development is responsible for the large per cent. of pelvic ills and reflexes arising therefrom, so frequent in that class.

In mal-development the unstriped muscular fibre is usually so deficient in formation and so scanty that the normal dimensions of the uterus are not present, or if present, the structure is not sufficiently normal to sustain the uterus in its proper position, and flexion is the result, or the circulation may be deficient as well as the unstriped muscular fibre, and we may have congestion with an enlarged uterus retroverted.

For several years I have treated quite a variety of diseases of women that I could trace to the result of mal-development of the uterus, and am clearly convinced that this is responsible for a great many diseases not heretofore attributed to that cause. Apart from my own experience in this relation I will mention the fact that in females who in youth labor manually, and those in whom we have no great amount of mental work, and no unhealthy or injurious habits of dress, we find the minimum amount of pelvic diseases and the most perfect and satisfactory confinement and puerperium. For example, the woman who was reared in the country, the North American Indians, Chinese, Africans, etc. The explanation lies solely in the fact that the generative organs are perfectly normal in all their parts and capable of performing their respective functions within the bounds of perfection. And in no instance do we have better proof of this side of the question than in noting their easy labors and the absence of complications so frequent in the cultured and more civilized.

But time will fail me to follow this subject farther, for the field is a wide one.

(To be continued.)

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, APRIL 1, 1893.

AMERICAN MEDICAL ASSOCIATION.

CONSTITUTION AND BY-LAWS.

HISTORY.

In May, 1846, a medical convention was held in the city of New York to consider measures for the elevation of the medical profession, in all its constituent elements, and for the promotion of its organic unity. After much discussion, it declared that a National organization, of every State and interest was demanded. Committees were appointed, to draft a Constitution, By-Laws and a Code of Ethics, and to report at a meeting to be held the following year. Accordingly in May, 1847, representatives of the profession of the United States met in Philadelphia, heard and discussed reports of the committees and adopted a Code of Ethics, a Constitution and By-Laws, which, with slight alterations, have continued to direct the organized movements of the profession till now. In compliance with the instruction of the Association in June, 1892, the following Constitution and By-Laws are formulated for the purpose of promoting the best activity of a general medical organization of the profession in North America.

CONSTITUTION.

Name.—This organization shall be known as The American Medical Association.

MEMBERS.

Members.—Membership shall be limited to members of the several affiliated State medical societies recognized thereby or represented therein. As membership in these societies is open to all reputable practitioners in each State, the membership in the American Medical Association is open to all reputable physicians in North America.

All persons now members of the Association shall continue such so long as they remain, in good standing in their State society, and pay their annual dues. If they desire to participate in any annual meeting they shall present to the Committee of Arrangements, of said meeting, a certificate from the officers of their State or local society to the effect that their standing is good, and one from the Treasurer of the Association showing that all dues are fully paid. To all presenting such certificates, the Committee of Arrangements shall issue the credentials necessary for active participation in the annual meeting.

Any member of a recognized State or local medical society may become a member of the Association by presenting to the Committee of Arrangements at any annual meeting, a certificate from the officers of his society showing that he is in good standing therein and a certificate from the Treasurer of this Association showing that he has paid the annual dues.

All members of the recognized State or local medical societies, who are unable to attend the annual meeting, may become members of the Association by sending to its Treasurer, at any time, a certificate from the officers of his society, of his good standing and remitting the annual dues.

All members who have fulfilled these two conditions shall have equal rights and equal responsibilities in the Association and regularly receive the Association journal.

All State Medical Societies with their constituent local societies shall be recognized by the American Medical Association if they accept its Code of Ethics.

Members of Canadian and Mexican medical societies, shall be admitted to membership upon the same terms, as those in the United States. The regular graduates of such schools and colleges of dentistry as require of their students, a standard of general education and a term of professional study equal to the best class of medical colleges in this country, and embrace in their curriculum all the fundamental branches of medicine; differing chiefly by substituting practical and clinical instruction in oral and dental surgery in place of practical and clinical instruction in general medicine and surgery, are recognized as members of the regular profession and eligible to membership upon the same terms as other members.

No person shall be permitted to take part in any annual meeting until he or she has completed the conditions of membership at that meeting and can exhibit certificates to this effect from the Committee of Arrangements. But suitable persons may be introduced as guests either at the general session or the Section sessions, and, be invited to engage in the scientific and social exercises of the meeting without taking part in the transaction of business.

MEETINGS.

Meetings.—The regular meetings shall be held annually at such time and place as may be advised by

the Business Committee and ordered by the Association. The details of these meetings are stated in the By-laws.

OFFICERS.

Officers.—The officers of this Association shall be a President, four Vice-Presidents, one Secretary, one Assistant Secretary, a Treasurer and a Librarian. These officers shall hold office during one year or until their successors are elected, and shall enter upon their duties immediately after election.

The President shall preside at the meetings, preserve order and decorum in debate, giving a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require. At the opening session he shall deliver an address to the general meeting, not to exceed thirty minutes in length.

The Vice-Presidents may be called upon to assist the President in the performance of his duties, and during his absence or at the request of the President, one of them shall officiate in his place.

The Secretary shall record the minutes of the general sessions and authenticate the proceedings; give due notice of the time and place of the next annual meeting; notify all members of committees of their appointment and the duties assigned to them; hold correspondence with other organized medical societies both domestic and foreign; and carefully preserve the archives and unpublished transactions of the Association.

For his personal expenses in attending the annual meetings the Secretary shall draw upon the Treasurer of the Association.

The Assistant Secretary shall aid in recording and authenticating the proceedings of the Association; serve as a member of the Committee of Arrangements and perform all the duties of the Secretary, temporarily, whenever that office shall be vacant by death, resignation or removal.

The Treasurer shall have the charge and management of the funds of the Association. He shall give the Board of Trustees bonds for the safe keeping and proper use and disposal of his trust. Through the same Board he shall present his accounts, duly authenticated, at each regular meeting. He shall each month furnish the President of the Board of Trustees with a statement of accounts for the guidance of the Board in its expenditures. For his personal expenses in attending the annual meetings, he shall draw upon the treasury through the President of the Board of Trustees.

The Librarian shall receive and preserve all property in books, pamphlets, journals, and manuscripts presented to or acquired by the Association, record their titles in a book prepared for this purpose and acknowledge the receipt of the same. He shall deposit these documents in such place and manner as the Association may direct after advising with the Board of Trustees.

STANDING COMMITTEES.

The Committee of Arrangements shall be composed of at least seven members of whom the Assistant Secretary shall be one, all residing in the place at which the Association is to hold its next annual meeting. It shall provide suitable accommodations for the meeting; shall verify and report upon the credentials of membership; shall issue credentials of membership to such as fulfill the conditions; shall publish the rules governing the reading and discussion of papers and the order to be observed in the business of the general and sectional meetings; shall receive and announce all papers communicated, and with the several Section Secretaries, determine the order in which the papers shall be read and discussed; shall prepare a list of members present on a separate roll for convenience in calling the ayes and nays, when these are demanded; it shall have each member register his name, address, and place of stopping during the annual meeting, and the name of the Section that he will attend and in which he will vote for Section officers. The expenses of hall for general meeting, of rooms for the Sections, and cards of membership, shall be met by the Association. Should the committee incur other expenses, it must meet them from its own resources.

This Committee shall be nominated by the Business Committee and elected by the Association.

The Board of Trustees shall consist of nine members, three of whom shall be elected annually on nomination of the Business Committee and serve for three years. This Board shall manage all matters relating to finance and publication. Thus it must provide for and superintend the publication and distribution of all such proceedings of the Association as may be ordered to be published, in such manner as the Association may direct. In doing this it shall have authority to appoint an editor and such assistants as may be necessary and determine their salaries. It shall procure and control such materials as may be necessary for the performing of the duties assigned it. To the Board or its representatives must be delivered, during the annual meeting or as soon thereafter as is possible, by the Secretary of Association and by the Section Secretaries or Executive Committees, all records of meetings, papers, or discussions and such other documents as were ordered published by the Association.

All money received by the Board of Trustees or its agents, resulting from the discharge of the duties assigned them, must be paid to the Treasurer of the Association, and all orders for disbursements of money, in any way connected with the work of publication, must be endorsed by the President of the Board of Trustees. It shall further be the duty of

the Board of Trustees to hold the official bond of the Treasurer for the faithful execution of his office, to annually audit and authenticate his accounts and present a statement of the same to the Association. This report must specify the character and cost of all publications of the Association during the year, the number of copies still on hand and the amount of all other property belonging to the Association, under its control, with such suggestions as it may deem necessary. It shall yearly publish a list of members, their addresses in full, year of admission, the Constitution and By-Laws and Code of Ethics, and such other information as may be deemed useful, for yearly distribution to the members at each meeting.

At the opening of each volume it shall publish a disclaimer by the Association for any responsibility for opinions expressed in the volume.

To this Board must be referred all propositions for the appropriation of money, to be considered and reported upon before the final action on the same by the Association.

The General Business Committee shall be composed of the several Section Executive Committees, selected as hereafter described. It shall hold daily meetings during the sessions of the Association, and such other meetings as may be deemed necessary for the performance of its duties. All matters of business not provided for by the Committee of Arrangements, the Board of Trustees, the Judicial Council and Special Committees, shall be referred to it without debate, for consideration and report to the Association. In general this Business Committee shall give especial attention to the interests of the Association as a whole and through these interests shall seek the development of the Sections; it shall consider all matters of business referred to it by the Association, and report upon them at the earliest possible moment, when the Association may accept or reject said report as it may deem best.

It shall be the duty of this Committee to seek the removal of such obstacles as interfere with the cordial coöperation in the Association of all competent, honest practitioners of rational medicine throughout this continent, and to promote every means by which coöperation shall be effected and maintained.

Further, the General Business Committee shall make and present the nominations for officers of the Association and its Standing Committees, and recommend the time and place of the ensuing meeting. It shall appoint its own officers and adopt rules for the orderly performance of its duties. Finally, it is expected that it will perform all its duties in the interests of the advancement of scientific medicine.

The Judicial Council shall consist of twenty-one members, whose duty it shall be to take cognizance of and decide all questions of an ethical or judicial character which may arise in connection with the Association. It is distinctly understood that neither this Council nor the Association shall take cognizance of differences arising between the members of any State or local society. Such differences must be settled by such societies themselves, and the Association will accept such decision as final.

Of the twenty-one members first appointed, the first seven named upon the list shall hold office one year and the second seven two years. With these exceptions, the term of office of the members of the Judicial Council shall be three years, seven being nominated by the Business Committee yearly, and elected by the Association. The Council shall organize by choosing a President and Secretary, and shall keep a permanent record of its proceedings. The decisions of said Council shall be final upon all ethical questions referred to it by the Association, and must be accepted without debate. Such decisions shall be reported to the Association as soon as practicable.

All questions of a personal character, including complaints and protests, and all questions on the ethical standing of medical societies, shall be referred at once, when presented to the Association, to the Judicial Council, and without debate.

INCOME AND EXPENSES.

The income of the Association shall be derived from subscriptions to its Journal and advertisements therein, from specific publications and voluntary contributions for specific objects.

Its funds may be appropriated for the expenses of halls, for general sessions and Section meetings, and for cards of membership, and such other expenses of the annual meeting as are essential for the conduct of the routine work; for meeting the necessary personal expenses of the Secretary and Treasurer while attending the annual meetings and in conducting the necessary correspondence; for publications; for enabling standing committees to fulfill their respective duties and conduct their correspondence; for the encouragement of scientific investigation by prizes; and for defraying the expenses of scientific investigation under the instruction of the Association where such investigation has been accompanied with an order upon the Treasurer to supply the funds necessary for carrying it into effect.

AMENDMENT.

No amendment or alteration shall be made in any of these rules except at an annual meeting next subsequent to that at which such amendment or alteration may have been proposed, and then only by the voice of three-fourths of all the members present. Provided, however, that when an amendment is properly under consideration, and an amendment thereto is offered germane to the subject, it shall be in order, and if adopted, shall have the

same standing and force as if proposed at the preceding meeting of the Association.

BY-LAWS.

1. Order of Business.—The order of business at the annual meetings of the American Medical Association shall be subject to the vote of three-fourths of all the members in attendance. Until thus altered, except when suspended, it shall be as follows:

1. Calling the meeting to order by the President.
2. The report of the Committee of Arrangements on the credentials of members, after the latter have registered their names and addresses; and on such other matters as it desires to present to the Association.
3. The reception of guests of the Association.
4. The annual address of the President.
5. The reception of reports from all special committees.
6. The reading and consideration of reports of standing committees, the Board of Trustees, Business Committee and Judicial Council.
7. New Business and instructions to standing committees.
8. The report of the Business Committee and the election of officers of the Association, the selection of next place of meeting.
9. Reports from the Executive Committees of the Sections.
10. Reading of the minutes by the Secretary.
11. Unfinished and miscellaneous business.
12. Adjournment.

MEETINGS.

The Annual Meetings of the American Medical Association shall be held in May if the place be in the South and in June if the place be in the North. The day of opening of the general sessions shall be on the first Tuesday after the first Monday of the month selected. The hour on the opening day shall be 10 A.M., and on the following days 4:30 P.M.

SECTIONS.

The several Sections shall hold their first meeting at 1:30 P.M. on the first day, and at 9 A.M. and 1:30 P.M. thereafter daily.

The several Sections are as follows:

1. Practical Medicine and Physiology.
2. Obstetrics and Diseases of Women.
3. Surgery and Anatomy.
4. State Medicine.
5. Ophthalmology.
6. Diseases of Children.
7. Dental and Oral Surgery.
8. Medical Jurisprudence and Neurology.
9. Dermatology and Syphilis.
10. Laryngology and Otology.
11. Materia Medica and Pharmacy.

Officers of Sections.—The officers of each Section shall consist of a Chairman, Secretary and Executive Committee. The Chairman and Secretary shall be elected annually immediately after the Section is called to order on the afternoon of the second day. During the session of the first day, the Chairman shall appoint a Nominating Committee consisting, if practicable, of ex-chairmen of the Section, to report at the opening of the afternoon session of the second day. Election shall be by ballot.

The Executive Committee of each Section shall, when first appointed, consist of three members from among those who have been in attendance at the sessions of the Section for at least two years, to serve for one, two and three years respectively; and thereafter the retiring Chairman of the Section shall take the place upon the committee of the retiring member. It shall be the duty of the Executive Committee, in conjunction with the Chairman and Secretary, to give special attention to the interests of their own Section. Thus they shall secure the annual republication from THE JOURNAL of the work of the Section, its papers and discussions, lists of officers, lists of all members of the Section, with their addresses, and rules adopted by the Section for the conduct of its work, securing from the Section the funds needful for the performance of this purpose. They shall carefully edit all publications of the Section, and secure a creditable mechanical execution of the same. They shall also take such measures as in their judgment will secure the cordial coöperation of all reputable workers in their special fields in North America. If desired by the Section, they will make arrangements for an inexpensive annual dinner for their individual Section.

Further, these several Executive Committees of the Sections shall meet together and form a General Business Committee of the Association, with powers and duties described under the head of the General Business Committee.

The Chairman of each Section, in addition to his duties as a presiding officer and a member of the Executive Committee, shall read a short address at the opening of the session on the first day. In conjunction with the Secretary, he shall secure from members papers to be read and arrange for the discussion of the same. This order of Section work he shall communicate to the Chairman of the Committee of Arrangements at least one month before the annual meeting.

No paper read before the Sections shall occupy more than twenty minutes. If it be longer, the writer should make such an abstract as will bring it within the limit and present it for discussion. No person shall discuss any paper more than once, or speak longer than fifteen minutes without unanimous consent.

No paper shall be read before any Section that is

not in such condition as to pass at once from the reader's hands to the Executive Committee of the Section. Within thirty days, said committee must forward the entire work of the Section to the Board of Trustees with such recommendations as it deems proper. But no paper shall thus be sent by an Executive Committee that does not fall under one of the following heads:

1. Such as may contain and establish new facts, new modes of practice or new principles of real value.

2. Such as may contain the results of well devised original experimental research.

3. Such as present so complete a review of the facts on any particular subject as to enable the writer to deduce therefrom legitimate conclusions of importance.

Other papers containing material of more or less value, shall be returned to their authors, to be published as they may desire, with the statement that they were read before said Section of the American Medical Association.

In general, it is expected that each Executive Committee will make every effort to secure for its special Section, papers and discussions which will fairly represent the active workers in their department of medicine, and otherwise promote cordial good will among the several workers therein.

PUBLICATION OF PAPERS AND REPORTS.

All papers and reports must be so prepared as to require no material alteration or addition at the hands of authors. All Section work must be in the hand of the Trustees within thirty days after the annual meeting. Proofs will be sent authors, but they should be returned at the earliest possible moment, and unless returned within two weeks will be omitted from THE JOURNAL. Every paper requiring it shall be illustrated at the expense of the Association, should it accept the same for publication. Every paper accepted is understood to be contributed exclusively to the Association Journal, though brief abstracts of the same may be published elsewhere. In case of an article that is of especial value, the result of expensive research or experimentation, the Trustees at their discretion, may compensate the writer in accord with the usual price of such work.

The Board of Trustees has the power to reject any paper refered to it, unless especially instructed to the contrary by the Association.

DUES.

Each member of the Association shall pay his annual subscription to the Journal of five dollars before receiving from the Committee of Arrangements his membership ticket to the annual meeting. The evidence of this shall be the Treasurer's receipt for the five dollars. Any member failing for one year to pay this subscription shall be dropped from the rolls.

DELEGATES.

The President of the American Medical Association is authorized to appoint members, desiring such appointment, as delegates to the several medical and scientific bodies that are in sympathy with the Association.

DUTIES OF MEMBERS.

No one shall be permitted to address the Association unless he first shall have given his name and address, which shall de distinctly announced from the chair. If desirable, the member may be required to go forward and speak from the platform.

Failure to do special committee work shall cause the offender to forfeit a continuance of the same appointment, or a place upon any other, unless satisfactory excuse is offered.

It is expected that every member will, in all ways available to him, promote the interests of the medical profession as represented in the Association. He is expected to conform to all its regulations in spirit and letter until they may be altered by the action of the body which formulated them.

CONDITIONS EXCLUDING FROM MEMBERSHIP.

All societies that reject the Code of Ethics of the American Medical Association or intentionally violate or disregard any article of the same are thereby of their own choice debarred from membership.

THE PREVIOUS QUESTION.

When the previous question is demanded, it shall take at least twenty members to second it. When the main question is put under force of the previous question and negatived, the question shall remain under consideration, the same as if the previous question had not been enforced.

NEW BUSINESS.

No new business, or resolutions by members, shall be introduced at the general session of the Association, except on the first and fourth days of the meetings.

ELIGIBILITY TO OFFICE.

In the election of officers and the appointing of committees by the Association and its President, they shall be confined, to members present at the meeting, except in the Committee of Arrangements.

MEDICAL AND SURGICAL EXHIBIT.

There shall be no medical and surgical exhibit, under the authority or recognition of the American Medical Association, other than that made before the several Sections under the supervision of the Business Committee. All that is new and of value to the scientific or practical physician can thus find an appreciative audience. Experience has shown that all other exhibits detract from the work in Sec-

tions and so lessen the attractiveness of the annual meetings to those whose presence is desirable.

THE CODE OF ETHICS.

The Committee on revision has not quite completed its work, but will have the revision ready for publication in an early issue.

ACROMEGALY.

That strange disease known as acromegaly continues to attract wide attention and the number of cases that are constantly being described in current medical literature, now that the features of the disease have become more generally known, would seem to indicate that the condition is much more common than was supposed. This idea is strengthened by the report of cases that were accidentally discovered, none of them coming under observation for the relief of painful or distressing symptoms. As DERCUM well puts it in a recent description of two such cases, both discovered by accident; it is probable that the larger number of patients with acromegaly pass through life without knowing that they are victims of a mysterious disease, realizing only that nature has made them big of limb and feature and unpleasant to look upon, thinking that their peculiar appearance was normal to them and not the result of a disease. Not long ago a case was discovered in the wards for skin diseases in the Cook County Hospital of Chicago, who was quite surprised to know that he was afflicted with a strange and obscure disease. In a recent critical digest of the literature on acromegaly JOSEPH COLLINS was able to refer to eighty-two recorded cases; he had one hundred and twenty-six references to the literature of the subject, thirty of the articles having appeared during 1892; of the whole list of articles fourteen were written in this country, and of these, six appeared in 1892, showing the increasing interest in the disease. The diffusion of knowledge concerning acromegaly has been and will be followed by the reports and descriptions of cases more or less thoroughly studied from all over the world. A disease which presents such characteristic and unusual external features as acromegaly cannot fail to attract attention. The uniform enlargement of the hands and feet without deformity or loss of function; the increase in the volume of the head with elongation and broadening of the face due to hypertrophy of the maxillary bones; the enlargement of the ears, of the tongue and other soft parts; the changes in the spine and elsewhere in the body together with headache; involvement of vision and other symptoms, ought to lead to the recognition of the disease in the majority of instances, and especially should this be true of those cases that may persist for as many years as fifteen or twenty or more.

PIERRE MARIE, the one who in 1886 first isolated acromegaly and defined it as a clinical entity, brought forward the view that the disease in all probability was due to changes in the pituitary body and it is quite true that in the majority of instances of post-mortem examinations of patients with acromegaly up to date the pituitary body has been found to be enlarged or otherwise morbidly changed. According to this view acromegaly is a systemic dystrophy dependent upon disturbances in the as yet unknown functions of the pituitary body, just as myxœdema appears to be due to diseases of the thyroid gland. In more than one-half of the cases reported in literature these have eye and ear symptoms and headache, pointing to direct changes in the hypophysis. It appears, however, that facts are gradually accumulating which tend to overthrow this hypothesis as to the etiology of acromegaly. In many cases of the disease the gland has not been found to be enlarged. Again, several cases are described (PACKARD, WEIR MITCHELL and others) in which the pituitary body was found either greatly enlarged or completely destroyed without the concomitant development of the phenomena of acromegaly. While it could not be demanded that every instance of petuitary disease should be followed by acromegaly yet the demonstration that acromegaly may exist without changes in the pituitary gland and that this body may be destroyed entirely without the appearance of acromegaly, would seem to throw much and reasonable doubt upon the theory originally advanced by MARIE. In the literature on acromegaly can be found cases in which glands in the most various parts of the body have been found greatly enlarged, and there are also cases recorded where extensive changes were found in the sympathetic nervous system, and HOLSCHEWNIKOFF (*Virchow's Archiv.*, Vol. 119, No. 1) details and comments upon a case of syringomyelia, degeneration in the peripheral nervous and acromegaly, so that it appears that the question can be safely raised as to what importance is to be attached to the pituitary body to glands elsewhere, and to the nervous system, in the etiology of acromegaly, which is manifestly a disease due to obscure trophic alterations.

THE IMPLIED CONTRACT BETWEEN PHYSICIAN AND PATIENT.

The implied contract between physician and patient, the violation of which on the part of the former constitutes malpractice, is defined anew with accuracy by the Supreme Court of Appeals of West Virginia, in the recent case of Lawson *v.* Conway, as follows:

When a physician is employed to attend upon a sick person, his employment continues while the sickness lasts, and the relation of physician and pa-

tient continues, unless it is put an end to by the assent of the parties, or is revoked by the express dismissal of the physician. The physician is bound to bestow such reasonable, ordinary care, skill, and diligence as physicians and surgeons in the same neighborhood, in the same general line of practice, ordinarily have and exercise in like cases. Time and locality are to be taken into the account, and the physician is bound to exercise the average degree of skill possessed by the profession in such localities. In the absence of special agreement, his engagement is to attend the case as long as it requires attention, unless he gives notice of his intention to discontinue his visits, or is dismissed by the patient, and he is bound to exercise reasonable and ordinary care and skill in determining when his attendance should cease. But his engagement is not to cure the patient, nor does he insure that his treatment will be successful. The mere failure to effect a cure does not even raise a presumption of a want of proper care, skill, and diligence. It is the duty of the patient to coöperate with the physician, and to conform to his prescriptions and directions, and if he neglect to do so he cannot hold the physician responsible for the consequences of his own neglect. On the other hand, he has a right to rely upon the instructions and directions of his physician, and incurs no liability by doing so.

THE SPECIALIST BEFORE A GENERAL MEDICAL SOCIETY.

When a specialist appears before a society composed mainly of practitioners of medicine and surgery, it should be with one of three avowed intentions, either 1, to present new investigations or discoveries which can not be better presented elsewhere; or 2, to instruct the members in that which it is important for them to know; or 3, simply to remind his hearers that he is still "doing business at the old stand." The numerous local and national special associations and special sections of general associations afford more than sufficient space for the presentation of all discoveries and investigations in special fields of labor, and in such meetings only can they be properly appreciated and intelligently discussed; and the specialist who takes the results of such work into a meeting of general practitioners subjects himself, unjustly no doubt in most instances, to the criticism of covert advertising. That any physician will selfishly occupy the time of any meeting solely for the sake of gain we cannot believe, although the regularity with which some reappear at the surface would seem to justify this conclusion. The only excuse, then, for the specialist would seem to be that he comes in the guise of a teacher and is prepared to impart knowledge which the members wish or need. As a general thing the society, or its officers, are competent to judge of these needs and wishes. This has, perhaps unconciously, been recognized by the Section on Pediatrics of the New York Academy of Medicine. On December 8, ult., by invitation, papers were read by Dr. Lewis A. Sayre, Dr. Royal Whitman, Dr. A. M. Phelps, and Dr. Leroy M. Yale before this Society, upon the early symptoms and the diagnosis of hip disease and Pott's disease. Such subjects as the early symptoms, the differential diagnoses, the prognosis, and the principles of treatment are practical and are appreciated, while the exhibition of results smacks of quackery and the tedious investigations of pathology and etiology and the confusing statistics of numerous cases become a weary burden to the listener and find a more proper place in print than on the floor of a medical meeting.

DOMESTIC CORRESPONDENCE.

To the Editor of the Journal of the American Medical Association:

In a recent reprint from the Association Journal, entitled "Herpes of the Buccal Mucous Membrane," the name of Cohen, in parenthesis, is included among others referred to as ignoring the subject of herpes of the pharynx. The name, which was an enclosed marginal note of the original manuscript, was not intended for the printer, and as its presence there does Dr. Solis-Cohen, who not only refers to herpes in his text-book, but has also reported several interesting cases, great injustice, I beg that you will insert this in explanation. Respectfully, J. E. Boylan.

BOOK REVIEWS.

The Year Book of Treatment for 1893. A critical review for Practitioners of Medicine and Surgery. By twenty-two English contributors. Philadelphia: Lea Brothers & Co. 1893.

Multum in parvo, fitly describes the nature of this little gem of a book. It represents the reading and condensing of a large number of medical journals for the past year. The material is selected with mature judgment as to its value, and is presented in as concise a form as is consistent with clearness. The 500 pages are brim full of well culled information on the recent advances and the present status of medicine in all of its practical branches. It has an index to authors quoted, and one to subjects.

In order that the reader may judge of the general tenor of the work a few notes are given on some of these subjects that seem to be uppermost in the thoughts of the profession. Dr. W. H. Corfield gives an account of the successful methods adopted by the sanitary officers of Great Britain to prevent an epidemic of cholera last year. He maintains that this is a preventable disease and insists that "those are surely to blame who, where the opportunities are given, do not succeed in preventing it."

Dr. E. M. Skerritt recommends the new anti-asthmatic, euphorbia pilulifera, but its mode of action is unknown. Excellent results are claimed. Dr. W. Jones reported twenty-three cases of asthma, in some of which removal of exostoses of the septum nasi, hypertrophied middle turbinates and polypi resulted in cures. In two instances of atrophic rhinitis alone cauterization only increased the asthma. Parenthetically it may be said that the same deplorable result has followed the same treatment in hypertrophic rhinitis.

In chronic bronchitis banana juice was reported to have given relief. The subject of tuberculosis occupies nineteen pages with a very complete review.

Dr. E. S. Reynolds' article on nervous diseases, abounds in reports on the effects of the latest hypnotics. Ballett sprays the spine with ether for chorea and uses no internal medication in the majority of cases, but his theory would suggest the administration of quinine also. Contrast this non-medical treatment with Voisin's 120 grains of potassium iodide *per diem!* With most of the writers antipyrine, chloral, and arsenic were the favorite remedies. Exalgin, in two or three grain doses, was said by Lowenthal to be successful in the majority of cases. Dana thinks it is a specific.

Brown-Sqéuard's fluid comes to the front again with reports of thirty-one cases of tabes cured or benefitted by injections of the testicular juice by Depoux and Gilbert. Strychnine and hypnotism are recorded as the most promising combatants of inebriety. There are important discussions of albuminuria favoring strophanthus, caffeine and diuretin, also morphine in small doses for uræmia. The differential diagnosis of diphtheritic affections is ably discussed by both American and English authors. As a rule, however, throughout the book the writers quoted are Europeans—English, French and Germans, in the order named. The review of the field of syphilis is pretty complete.

The summary of the therapeutics of the year 1892, by Dr. W. G. Smith is an unusually satisfactory one. It gives an account of the newest remedies, many of which are not mentioned in the latest works on therapeutics.

The book is of the right size and character to make an ideal traveling companion for the progessive physician.

ALCOHOLISM AND ITS TREATMENT. By J. E. USHER, M.D., F.R.C.S., London, formerly Surgeon Superintendent and Medical Officer of Health to the Queensland Government. New York: G. P. Putnam's Sons. 1892: Pp. 150.

The author takes the position that alcoholism is a disease not that every one who drinks is an alcoholist, however. He defines his position thus: "It is not intended that any forms other than those of a chronic nature, or where a known heredity exists, or in which fixed mental change (insanity) is present (as shown by positive evidence in the changed conduct of an alcoholist), can be allowed in palliation of any offence; and then only where the circumstances have been fully investigated and understood. At times it would be necessary to have opinions of experts to dispel any uncertainty that might be supposed to exist."

Numerous cases are detailed, illustrating the different phases of alcoholic insanity, and are as deeply interesting as a narrative from the pen of a novelist. Heredity as a cause of the drink habit is estimated to be present in nearly 60 per cent. of all cases of alcoholism. This book shows the large proportion of the insane in the hospitals of different countries, and the relative proportions of criminals of the various classes, who were drunkards. It is in effect an irresistible scientific temperance argument, but possibly inoffensive. It is not intended as a temperance lecture and does not emenate from a prohibitionist, but one cannot read it without the impression that there is no need of using cheap sensationalism to inculcate the principles of true temperance. Dry (?) statistics thunder forth the loudest warnings against the shock results of the acursed thirst for drink. "Ten nights in a bar room" does not begin to reveal the wretchedness of the tens of thousands whose insatiable appetite costs them their reason, their liberty and their lives.

The laws of England and of the United States, bearing on this subject, are reviewed and compared with decided advantage to our own, in an equitable and humanitarian point of view. It is held that the insane criminals should be housed and confined in hospitals.

The subject of treatment occupies one-fifth of the book, and the methods of the most prominent specialists of Europe and America are given. Analyses of the alleged cures are published, including the much advertised gold fad.

Every physician, sociologist and humanitarian who desires a broad understanding of the present scientific status of the subject of alcoholism should cultivate the acquaintance of this admirable monograph.

DISEASES OF THE THROAT, NOSE AND EAR. A Clinical Manual for Students and Practitioners. By P. M. MCBRIDE, M.D., F.R.C.P., Ed., Fellow of the Royal Society of Edinburgh; Surgeon to the Ear and Throat Department of the Royal Infirmary, etc. Philadelphia: P. Blakiston, Son & Co.

In this work the author has presented his subject in a much more perspicuous and concise manner than is usual in many books purporting to be manuals. He has assumed that the student is familiar with the anatomy and physiology of the organs considered, or has the facilities for becoming so, and therefore does not burden his book with elaborate disquisitions on these matters, merely incorporating in the text anatomical and physiological hints where such are specially required on clinical grounds.

A lengthy and detailed description of instruments is also purposely and wisely avoided.

In the chapter devoted to general semeiology of the diseases of the nose, the author makes a very fair statement of the views of rhinologists as to the remote effects of morbid conditions of the nose, especially as to the so-called nasal reflex neuroses. We heartily agree with the statement that "while rhinologists know what a normal nose ought to be, they are not aware of the exact amount of deviation from the normal which may exist without discomfort in any given case. More or less hypertrophy of the mucous membrane and irregularities of the septum can—while men are constituted as they are, and not according to what the rhinologist conceives they ought to be—hardly be classed as morbid conditions." His own practice, and it would be well if he had more followers, is to treat such conditions only when they produce discomfort.

He recognizes the fact that treatment of the nose is able to cure or temporarily relieve a number of neuroses, but does not consider that the latter are, in consequence, necessarily of nasal origin. Here he occupies conservative ground, and sounds a note of warning to those who see in operations on the nose a cure for a multitude of ills; the indiscriminate practice of such operations may do harm, as we have often had occasion to see.

The part of the work devoted to the diseases of the ear is excellently written, and the subject is presented in a practical way. Taking up the methods of examination, he discusses briefly and well the value to be attached to the experiments of Weber and Rinné.

A chapter on general semeiology and one on general therapeutics are followed by two hundred pages devoted to a consideration of the diseases of the external, middle and internal ear. We had hoped that the author would shed a little more light on the abstruse subject of affections of the internal ear, but it is rather briefly considered.

The references to literature are very numerous, as shown by the long list of names in the index of authors, but it is to be regretted that a book that contains such evidence of the writer's wide reading should not have been deemed worthy of a carefully prepared bibliography.

The work is handsomely illustrated with numerous colored plates from original drawings, and is to be highly recommended.

MISCELLANY.

By direction of the Committee of Organization of the Pan-American Medical Congress, the following gentlemen have been elected an Advisory Council in the Section on Pathology: Drs. W. H. B. Aikes, *Ontario Medical Journal*, Toronto; Allen J. Smith, University of Texas, Galveston, Tex.; G. N. F. Nuttall, Johns Hopkins University, Baltimore; W. T. Howard, Jr., 304 Madison Ave., Baltimore; W. N. Gardner, Long Island College Hospital, Brooklyn; Ira Van Giesen, 137 W. Fifty-ninth St., New York; Thos. G. Lee, University of Minnesota, Minneapolis; Joseph McFarland, Philadelphia; Henry W. Cattell, Philadelphia; E. H. Wilson, Hoagland Laboratory, Brooklyn; James E. Reeves, 201 McCullen Ave., Chattanooga; Henry Dickson Bruns, Morris Building, New Orleans. David Inglis, Sec'y.

Section of General Medicine of the Pan-American Medical Congress.—This unique assemblage promises to be one of the most important events that has occurred in the history of medicine in the Americas. Its success is assured by the large number of valuable papers already promised. The Section on General Medicine, which is one of the most important that has been created, bids fair to be one of the most successful in the entire Congress; and already many valuable contributions are in process of preparation, and will be read at the meeting in September. It is hoped with the hearty coöperation of all physicians living not only in North but also in South and Central America, that the work in this Section will be memorable; and each physician living on this continent is requested to join this most important Section, and to prepare a contribution to be read before that body. It is especially requested that those intending to join this Section or to read papers shall at once send their names, with titles of papers, to the Secretary, Dr. Judson Daland, No. 319 South Eighteenth Street, Philadelphia, Pa., so that they may be noted on the calendar and given their appropriate places.

Indian Territory Medical Association.—At the next regular semi-annual meeting of the Indian Territory Medical Association at Atoka, Ind. Ter., Thursday, June 22, 1893, the following papers will be presented:

Tetanus, by B. Hatchet, M.D., Ft. Smith, Ark.

La Grippe, by J. C. Bushymead, M.D., Claremore, I. T.

Discussion opened by E. N. Allen, M.D., McAlester, I. T.

Pneumonia, W. C. Hall, M.D., Coffeyville, Kan.

Discussion opened by R. I. Bond, M.D., Lehigh, I. T.

Laceration of the Cervix Uteri, E. N. Wright, M.D., Lehigh, I. T.

Discussion opened by G. R. Rucker, M.D., Eufaula, I. T.

Uterine Inertia, by J. N. Winsborough, M.D., Wagoner, I.T.

Discussion opened by L. C. Tennant, M.D., McAlester, I.T.

Stricture of Membranous Urethra, W. R. Thompson, M.D., Oklahoma City, O. T.

Discussion opened by A. M. Clinkscales, M.D., Vinita, I. T.

Vesical Calculus, W. H. Harrison, M.D., Webbers Falls, I. T.

Discussion opened by J. R. Blakemore, M.D., Muskogee, I. T.

Conjunctivitis, by J. H. Moulton, M.D., (Specialist,) Ft. Smith, Ark.

Voluntary papers solicited. H. B. Smith, M.D., *Pres.*,
Oliver Bagby, M.D., *Sec'y.*, McAlester, I. T.
Vinita, I. T.

Pan-American Medical Congress, to be held at Washington, D. C., September 5, 6, 7 and 8, A.D., 1893.

Section on Hygiene, Climatology and Demography. Honorary Presidents.—Drs. A. Nelson Bell, Brooklyn, N. Y.; Federico Puca Borne, Santiago, Chile; Emelio R. Coni, Buenos Aires, Argentine Republic; J. J. Cornilliac, St. Pierre, Martinique, E. W. I.; Roland G. Curtin, Philadelphia, Pa.; Charles Denison, Denver, Col.; Martin Dulante, Lima, Peru; Samuel H. Durgin, Boston, Mass.; Justin E. Emerson, Detroit, Mich.; Cárlos Finlay, Havana, Cuba; Felix Formento, New Orleans, La.; Aranjo Goes, Rio de Janeiro, U. S. of Brazil; Henry R. Hopkins, Buffalo, N. Y.; E. P. LaChapelle, Montreal, Canada; Eduardo Liceaga, City of Mexico, Mexico; Frederick Montizambert, Quebec, Canada; John S. McGrew, Honolulu, Hawaii; John H. Rauch, Chicago, Ill.; E. L. Shurley, Detroit, Mich., Stephen Smith, New York City; Deputy Surgeon-General George M. Sternberg, U. S. A.; John Sundberg, San Francisco, Cal.; Henry P. Walcott, Boston, Mass.; Irving A. Watson, Concord, N. H.

Executive President.—Medical Director Albert L. Gihon, M.D., U. S. N.

Secretaries.—Drs. Peter H. Bryce (English-speaking), Toronto, Canada; Pedro José Salicrup (Spanish-speaking), 129 E. Seventeenth St., New York City; Pedro N. Arata, 25 de Mayo 273, Buenos Aires, Argentine Republic; Luis Pierola, La Paz, Bolivia; Pacifico Pereira, Bahio, U. S. of Brazil; E. J. Rowland, New Amsterdam, British Guiana; Gabriel Durango Borda, Bogota, Republic of Colombia; Juan J. Flores, Heredia, Costa Rica; Manuel Delfin, Havana, Cuba; George Trousseau, Honolulu, Hawaii; Clarke, Santa Cruz, Jamaica; Kalmer, St. Croix, Leeward Islands, W. I.; J. Carreau, Point à Pitre, Guadeloupe, F. W. I.; Enecon Mora, Quezaltenango, Guatemala; Domingo Orvañanos, Chavarria 25, City of Mexico, Mexico; Montenegro, Leon, Nicaragua; José Arechavaleta, Montevideo, Uruguay, Calixto Gonzáles, Caracas, Venezuela.

Advisory Council.—Drs. Thomas J. Bennett, Austin, Tex.; William F. Brunner, Savannah, Ga.; John Coventry, Windsor, Ontario; J. Z. Currie, Fredericton, New Brunswick, Charles H. Fisher, Providence, R. I.; Henry D. Holton, Brattleboro, Vt.; George Homan, St. Louis, Mo.; Henry B. Horlbeck, Charleston, S. C.; Samuel R. Milliken, New York City; George Milne, Victoria, British Columbia; Henry S. Orme, Los Angeles, Cal.; Charles O. Probst, Columbus, O.; George H. Rohé, Catonsville, Md., Pinckney Thompson, Henderson, Ky.; James B. Walker, Philadelphia, Pa.

The Tennessee State Medical Society will meet in Nashville, April 11, 12 and 13. The following is the programe.

"Human Life," President's Address, by C. W. Beaumont, M.D., President, Clarksville.

"Monkeying with Microbes," by A. B. Tadlock, M.D., Knoxville. To open discussion, G. W. Drake, M.D., Chattanooga, and Richard Douglas, M.D., Nashville.

"Genital Reflexes," by C. Holtzelaw, Chattanooga. To open discussion, W. Frank Glenn, M.D., Nashville, and Charles M. Drake, M.D., Knoxville.

"What Relation Does Dentition Bear to Disease?" by Thomas P. Davis, M.D., Alexandria. To open discussion, W. D. Haggard, M.D., Nashville, and D. F. Banks, M.D., Jordonia.

"Report of a Case of Extensive Scalp Wound," by G. B. Gillespie, M.D., Covington. To open discussion, G. A. Baxter, M.D., Chattanooga, and J. B. Murfree, M.D., Murfreesboro.

"Maritime and Interstate Quarantine," by G. B. Thornton, M.D., Memphis, To open discussion, J. Berrien Lindsley, M. D., Nashville, and P. D. Sims, M.D., Chattanooga.

"Typhoid Fever in Young Children," by L. P. Barbour, M. D., Tracy City. To open discussion, T. L. Maddin, M.D., Nashville, and J. A. Witherspoon, M.D., Columbia.

"Wounds to the Eye Ball," by N. C. Steele, M.D., Chattanooga. To open discussion, T. H. Wood, M.D., Nashville, and W. C. Bilbro, M.D., Murfreesboro.

"Whooping Cough," by Wm. B. St. John, M.D., Bristol. To open discussion, W. G. Ewing, M.D., Nashville, and J. F. Byrn, M.D., Murfreesboro.

"Traumatic Empyema," by N. T. Dulaney, M.D. Bristol. To open discussion, Duncan Eve, M.D., Nashville, and R. J. Trippe, M.D., Chattanooga.

Paper, title of which I have not yet learned, by A. D. Scruggs, M.D., Knoxville.

"The Indications and Methods of Treating Uterine Fibroids" by Richard Douglas, M.D., Nashville. To open discussion, W. L. Nichol, M.D., Nashville, and R. B. Maury, M.D., Memphis.

"Report of a Case of a Tumor Complicating Delivery," by T. J. Crofford, M.D., Memphis. To open discussion, Thomas Menees, M.D., Nashville, and J. B. Cowan, M.D., Tullahoma.

"Retro-Flexio Uteri," by J. R. Buist, M.D. Nashville. To open discussion, W. G. Bogart, M.D., Chattanooga, and J. Bunyan Stephens, M.D., Nashville.

"Recurrent Pelvic Inflammation," by W. W. Taylor, M. D., Memphis. To open discussion, A. W. Boyd, M.D., Chattanooga, and W. M. Vertrees, M.D., Nashville.

"Uterine Displacement," by J. A. Witherspoon, M.D., Columbia. To open discussion, T. H. Marable, M.D., Clarksville, and J. P. C. Walker, M.D., Dyersburg.

"Report of an Interesting Case of Vaginal Hysterectomy," by W. D. Haggard, M.D., Nashville. To open discussion, W. T. Briggs, M.D. Nashville, and C. E. Ristine, M.D., Knoxville.

"Post-Partum Hæmorrhage," by H. J. Warmuth, M.D., Smyrna. To open discussion, W. L. Haggard, M.D., Nashville, and Charles H. Brooks, M.D., Knoxville.

"Pyæmia," by C. W. Womack, M.D., Chapel Hill. To open discussion, J. S. Cain, M.D., Nashville, and C. Deadrick, M. D., Knoxville.

"Report of a Case of Congenital Fistula, Operation and Cure," by W. A. H. Coop, M.D., Dyersburg. To open discussion, Richard Cheatham, M.D., Nashville, and S. S. Crockett, M.D., Nashville.

"Report of a Case," by Duncan Eve, M.D. Nashville.

"Treatment of Indolent Buboes," by W. B Rogers, M.D., Memphis. To open discussion, W. K. Vance, M. D., Bristol, and W. K. Sheddan, M.D., Williamsport.

A paper by R. J. Trippe, M.D., Chattanooga.

"Aids to Digestion," by L. C. Chisholm, M.D., Orlinda. To open discussion, J. W. Penn, M.D., Humbolt, and A. J. Swaney, M.D., Gallatin.

"Progressive Medicine and Surgery," by John P. Blankenship, M.D. Maryville. To open discussion, F. L. Sim, M.D., Memphis, and T. R. Moss, M.D., Dyersburg.

"Diphtheria," by T. J. Happel, M.D., Trenton. To open discussion, George R. West, M.D., Chattanooga, and Thos. M. Woodson, M.D., Gallatin.

"Report of the State Board of Medical Examiners," by T. J. Happel, M.D., Secretary. To open discussion, J. G. Sinclair, M. D., Nashville, and Deering J. Roberts, M.D., Knoxville.

"Report of a Case of Tuberculosis of the Kidney, Ureter and Bladder," by W. B. Young, M.D., Bon Air Coal Mines. To open discussion, G. W. Moody, M.D., Shelbyville, and S. B. Boyd, M.D., Knoxville.

"What the General Practitioner Should Know of Eye Diseases," by F. T. Smith, M.D., Chattanooga. To open discussion, Geo. H. Price, M.D., Nashville, and G. C. Savage, M.D., Nashville.

"Disease of the Prostate Gland," by J. W. Handley, M.D. Nashville. To open discussion, T. C. V. Barkley, M.D., Chattanooga, and C. S. Briggs, M.D. Nashville.

"Hypnotism and its Evils," by T. P. Crutcher, M.D., Nashville. To open discussion, W. C. Townes, M.D., and Paul F. Eve, M.D., Nashville.

It is not intended in appointing only two members to open discussion on papers to limit the discussion but to see that each paper is properly discussed. All parties should see that the reading of their papers does not consume more than twenty minutes, as prescribed by the by-laws, so that all papers on the program may be read, properly discussed and time may be given for any volunteer reports of cases or papers.

AMERICAN ACADEMY OF MEDICINE, preliminary program of the meeting for 1893, at Milwaukee. (Some of the papers are promised provisionally and are announced with this understanding.)

Saturday morning, June 3, at 10 o'clock:

Executive Business.

Reports of Committees.

1. On Eligible Fellows.

2. On the Requirements for Preliminary Education in the various Medical Colleges in the United States and Canada.

3. On the Comparative Value of Academical Degrees.

Papers:

1. "The Attitude of our Medical Schools in Relation to Preliminary Studies," R. Lowry Sibbet, Carlisle, Pa.

2. "What Mental Faculties should be specially trained for the study of Medicine?" James W. Moore, Lafayette College.

3. "The Classics and the Common Schools," J. Berrien Lindsley, Nashville, Tenn.

Saturday afternoon at 2:30:

President's Address.

Papers:

1. "What should be required in an Entrance Examination to a Medical School?" James W. Holland, Jefferson Medical School.

2. "Should there be elective studies in a Medical Course?" P. S. Conner, Medical Department, Dartmouth College.

3. "On the Endowment of Medical Schools," George M. Gould, Philadelphia.

Reunion Session, Saturday evening.

Monday morning, June 5, at 10 o'clock:

Executive Business.

Report of the Committee on the Laws regulating the Practice of Medicine.

Papers:

1 "The Duty of the State to Medicine," Benjamin Lee, Philadelphia.

2. "The Importance of the Study of Medical Sociology," Charles McIntire, Easton, Pa.

3. C. C. Bombaugh, Baltimore, title to be announced later.

There will probably be time at the meeting for the reading of two or three papers more than are now on the program. Fellows who desire to contribute such papers are requested to send the titles to the Secretary.

MEDICAL ASSOCIATION OF GEORGIA.—Preliminary program of the forty-fourth annual session of the Medical Association of Georgia, to be held in Americus, Georgia, April 19, 20, and 21, 1893. Papers to be read (partial list):

The President's Annual Address, by A. A. Smith, M.D., Hawkinsville.

Orator's Address—Woman's Relations to the Practice of Medicine, by Frank Ridley, M.D., LaGrange.

Diffuse Traumatic Aneurism of Anterior Tibial Artery—Ligation of Femoral, by F. R. Calhoun, M.D., Cartersville.

Multiple Neuritis, "Alcoholic," by Mark H. O'Daniel, M.D., Macon.

Salpingitis: Pathology and Treatment, by R. R. Kime, M.D., Atlanta.

Puerperal Eclampsia, with Special Reference to its Cause and Treatment, by A. C. Davidson, M.D., Sharon.

Asphyxia Neophytorum, R. J. Nunn, M. D., Savannah.

Stab of the Stomach—the Organ Protruding through Abdominal Wall—Laparotomy—Recovery, by J. W. Griggs, M.D., West Point.

Operation for Fistula in Ano by Ligation, by John J. Hill, M.D., Washington.

The Contagiousness of Consumption, by J. G. Hopkins, M.D., Thomasville.

The Disappointment of the Menopause, by J. C. Avery, M.D., Atlanta.

Headache Versus Glaucoma, by W. T. Bullard, M.D., Columbus.

"Shot Gun" Prescriptions, by C. C. Hart, M.D., Cross Keys.

A Review of "Dr. Senn's Views on Elastic Constrictions," by W. H. Elliott, M.D., Savannah.

The Practice of Medicine in Georgia, by A. C. Blain, M.D., Macon.

Hernia, by W. F. Westmoreland, M.D., Atlanta,

Anti-pyretics, Translated from the German, of a Paper Before the National Medical Congress in Berlin, by Cantani—Translation made by Myself, S. B. Polland, M.D., Griswoldville.

Science in Medicine and Surgery, by J. McFadden Gaston, M.D., Atlanta.

Ophthalmia of the New Born, by S. Latimer Phillips, M.D., Savannah.

Periproctitis with an Abscess, and Report of a Case, M. L. Currie, M.D., Mt. Vernon.

The Necessity for a Medical Examining Board in Georgia, by L. B. Granby, M.D., Atlanta.

Impure and Pure Mineral Waters, in which I will Endeavor to show the Frauds Committed in the sale of the First, and the Law Necessary for Protection in the Last, by T. S. Hopkins, M.D., Thomasville.

State and Municipal Hygiene, by J. C. Avery, M.D., Atlanta.

Rare Case in Obstetrics Practice, O. H. Buford, M.D., Carterville.

Sterility in the Male, C. Evans Johnson, Atlanta.

Conditions indicating Abdominal Operations and Report of Cases, by Frank M. Ridley, M.D., LaGrange.

Pneumonia, by O. T. Kenyon, M.D., Weston

The Function and Nutritive Value of Foods, by Louis H. Jones, Atlanta.

Stone in the Bladder, with Report of Cases, by F. W. McRae, M.D., Atlanta.

Non-Surgical Treatment of Typhilitis, by E. H. Richardson, M.D., Atlanta.

Drainage in Pelvic Surgery, by George H. Noble, M.D., Atlanta.

Specialism in Medicine, by A. S. Hawes, M.D., Atlanta.

Partial Tenotomy a Radical Cure for Heterophoralgia, by C. H. Peete, M.D., Macon.

Pathology of Gynecic Neurosis, by Ross P. Cox, M.D., Rome.

Persistent Remittant or so-called Typho-Malarial Fever, with Report of Cases, by W. P. Williams, M.D., Blackshear.

Some Remarks on Aseptic Surgery, with Exhibition of Sterilizing Methods, by T. M. McIntosh, M.D., Thomasville.

Mechanical Treatment of Some Skin Anomalies, by M. B. Hutchins, M.D., Atlanta.

Three Women Who Refused Laparotomy, by H. McHatton, M.D., Macon.

A. A. SMITH, M.D., *President.*
DAN H. HOWELL, M.D., *Secretary.*